UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

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EGENERA, INC.,
Plaintiff

vs.

CISCO SYSTEMS, INC.,
Defendant

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CIVIL ACTION
No. 16-11613-RGS

BEFORE THE HONORABLE RICHARD G. STEARNS
UNITED STATES DISTRICT COURT JUDGE
AND A JURY
CIVIL JURY TRIAL DAY 5
August 8, 2022

Courtroom No. 21
1 Courthouse Way
Boston, Massachusetts 02210

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P R O C E E D I N G S

(8:40 a.m.)

THE CLERK: All rise.

(Whereupon, the Court entered the courtroom.)

THE CLERK: Court is open. You may be seated.

THE COURT: Let's deal with this expeditiously, as the jurors are arriving.

The clock issue is the easiest to resolve.

With respect to Cisco's calculation, it's almost right. What I see I did -- I was having trouble with the Chen deposition on the allocation, which is why I asked what the time allocation was. And then I adjusted manually, but I adjusted -- for some reason I gave Cisco all of the double credit for Egenera's contribution.

So if I subtract that, officially Cisco is 4 hours and 44 minutes, which is pretty close to, I think, what you calculated at.

With respect to the Egenera's objection. Again, I can see what I did. I left the clock running during the break. I'm not sure exactly how long the break was, but that's a 23-minute discrepancy, which sounds about right for breaks. So I will just accept the 7-hour and 19-minute figure. So that should resolve that.

Okay, now, with respect to this never-ending business about the appendices.

You have to keep two things in mind. There's a difference between evidence. I understand the demonstrative. Yes, the expert, Dr. Jones, can use so much of the appendices that are not testimonial assertion, that merely illustrate how did his work to come to the conclusions he did. That can be shown to the jury. It doesn't make it an exhibit, though, as long as we're clear on that.

But in terms of a demonstrative, yes, but if it's not used, it's not used.

All right, with the third-party contacts, there is absolutely no way I can revolve this based on what you told me. So I'm going to have to ask Egenera to identify every one of those contacts that it intends to use, and then if Cisco wasn't included in the contact, then we can reconsider it then. Right now I don't have enough information because I believe both of you, but that still leaves a gap in terms of the resolution.

All right, with respect to the slide, PTX-0010, I agree with Egenera. I already ruled on that. What I said was, Use it, just don't call attention to the fact that some of it was under seal. That, I think, was the issue we were trying to avoid.

With respect to the witnesses within a hundred miles of the court, I think it's kind of cruel to make someone come

100 miles to testify for three minutes in the age of COVID. But since the rules are the rules, I would say Busby, yes, we will have to appear in person because he is designated under 32(a)(3).

Greenspan, I don't see any basis that I would admit it. I have no idea what 802(d)(2) is. I don't think there is such a rule. But that's neither here nor there. I just don't think there is a basis.

So Busby, yes; Greenspan, no.

The rebuttal case, I've already said there would be a rebuttal case. So there will be a rebuttal case, but it has to be within the 15 allotted hours.

Okay. So that's as far as I think I can go on what you woke me up with this morning.

MS. NOTIS-McCONARTY: I understand. Thank you, your Honor. We're pulling together a list of all of the third parties and should have that for you momentarily, but --

THE COURT: I need it less than Cisco needs it, because they want to know whether they took part in a conversation.

MS. NOTIS-McCONARTY: Yes, Cisco was copied on all the communications with third parties, and my understanding is is that Cisco is aware of the identity of every single one of the parties.

THE COURT: Okay.

MS. NOTIS-McCONARTY: They've been included on he discussions, too.

MR. OLSHESKI: Your Honor, I don't believe that we've been included on all. We have been included on some.

And for each third party who Egenera has spoken to that we were a party to that conversation, and we've let them know that we can agree to any limited use of the exhibits. We just haven't heard back as far as any clearance to the extent that Cisco needs to use the exhibits.

THE COURT: Let's get the list. I don't have to resolve that by nine o'clock.

MS. NOTIS-McCONARTY: Thank you, your Honor. And I also note that the third parties were subpoenaed in discovery. So their identities are known to both sides, but we'll get you that list.

THE COURT: Let's everybody verify it so we don't have any squabbles in court.

We're still waiting for two jurors, but I hope we'll get underway shortly.

Who is going to be the first witness?

MS. NOTIS-McCONARTY: The first witness will be Dr. Jones.

THE COURT: Okay, good. So I'll see you hopefully a little bit before nine.

MS. NOTIS-McCONARTY: Thank you, your Honor.

MR. OLSHESKI: Thank you, your Honor.

THE CLERK: All rise.

(Recess.)

THE CLERK: All rise for the jury.

(Whereupon, the jury entered the courtroom.)

THE CLERK: All rise for this Honorable Court.

(Whereupon, the Court entered the courtroom.)

THE CLERK: Resuming on the record in Civil Action No. 16-11613, Egenera versus Cisco.

THE COURT: Good morning again, counsel.

And good morning, jurors. Everyone found their way back, and we're off to an early start today, which is a good thing, and we will begin, I think, with a new witness, Dr. Jones?

MR. SCHENKER: Yes, your Honor.

Egenera calls Dr. Mark T. Jones.

THE CLERK: Please raise your right hand.

**MARK T. JONES, sworn**

THE CLERK: Could you please introduce yourself, spelling your last name for the record.

THE WITNESS: Yes. My name is Mark Jones, J-O-N-E-S.

**DIRECT EXAMINATION**

**BY MR. SCHENKER**

Q Good morning, Dr. Jones. You are a doctor; is that right?

A I am a professor emeritus in logical and computer engineering at Virginia Tech.

Q How long were you a professor at Virginia Tech.?

A About 25 years.

Q Dr. Jones, what is the purpose of your testimony today?

A I'm here to testify about the topic of infringement and the conclusions I reached based on the investigation I did and the reports that I filed.

Q Are you an expert witness, Dr. Jones?

A Yes, I am.

Q And were you compensated for your time spent working on this case?

A Yes, I was compensated for my work at $450 an hour.

Q Does your compensation have anything to do with the outcome of this trial?

A No, it's not dependent on that.

Q Dr. Jones, I would like you to tell the jury a little bit about yourself.

How old are you?

A I'm 57.

Q And where do you live?

A I live in Blacksburg, Virginia?
Q How long have you lived in Blacksburg?
A My family first moved there when I was just entering high school, when my dad took a job at Virginia Tech. as a professor.
Q You said you were a professor at Virginia Tech. Did you teach there at the same time as your father?
A We did. We overlapped a few years before he retired.
Q What made you want to be a teacher?
A Well, my dad was a professor. My mom taught kids who were struggling to read as a teacher. So it just seemed like a natural thing. You know, both my parents were teachers. I just kind of fell into that.
Q Before you became a professor at Virginia Tech, what was your educational background?
A I had a -- I got my bachelor of science degree in computer science from Clemson, and then my Ph.D. in computer science from Duke.
Q And what year did you get your Ph.D.?
A 1990.
Q What is computer science?
A I describe it as the study of how to understand and use computers in ways that solve real-world problems.
Q While you were in school, did you also work?
A I did. I worked as an undergraduate in various labs

doing the writing programs, worked as a residents adviser in grad school. I worked at NASA during the summers. I also took on consulting work.

Q What did you do for NASA?

A There I was working on research and developing programs to analyze space structures. So as part of one of those, I worked on -- this was a while back, and so they were still studying the Challenger disaster, and we are studying the structures involved in that accident.

Q After you earned you're Ph.D., did you go straight into teaching?

A No. I wanted to take a few years. So I went to a Department of Energy research facility outside of Chicago called Argonne National Laboratory.

Q What your -- when did you become a professor?

A I became a professor in 1993. I went to the University of Tennessee Computer Science Departments, and then in 1997 I went to Virginia Tech., as that was home.

Q What were your responsibilities as a professor?

A I taught undergraduate classes. I taught graduate classes. I supervised graduate students, performed research and had research projects that funded students and post-doctoral researchers as well as administrative responsibilities.

Q Did you continue to write computer programs even after

you became a professor?
A I don't think a month has gone by since maybe 1980 that I haven't written a computer program. I enjoy doing it. Most people don't, but I do, so I continued doing it.
Q Dr. Jones, have you previously served as an expert in a patent infringement case?
A Yes. I've been in approximately 20 patent trials.
Q And do you always work for plaintiffs in litigation?
A No. In cases I worked for both plaintiffs and defendants.
Q Dr. Jones, what makes you qualified to give testimony about infringement in this case?
A It's my background in the area, but also the investigation and materials that I've studied in this case and report that I filed.
MR. SCHENKER: Can we open PDX-10.1.
Q Dr. Jones, will you give the jury an overview of the things we are going to discuss today?
A Yes, I'll give a brief overview of the '430 Patent. We've heard a fair amount about that.
I'll give an overview of the accused UCS system.
I'll provide my detailed infringement analysis, and then I'll discuss Cisco's infringing actions.
Q And turning to the next slide.
What evidence and information did you review to

form your opinions that you will be offering today?
A I started with the '430 Patent and its file history, the related-to documents. I looked at, and was able to study, Cisco's and Egenera's technical documents, some of which were confidential. Testimony from witnesses, some of which we heard at trial. Interrogatory responses from both parties, technical marketing sales documents from both parties. I had a -- put together a UCS test bed, a system that I could test to operate the products and will present some information from that. I was able to study Cisco's computer source code as well as information from Cisco's customers.
Q And is all the information you studied publicly available?
A No, not all of it. As an expert witness, I'm able to -- or given access to certain confidential information from both parties that -- such as the source code, that is not available to outside parties.
MR. SCHENKER: I would like to turn to the '430 Patent.
Mr. Fitzgerald, can we bring up JTX-1.
Thank you.
Q Dr. Jones, you heard Mr. Manca testify about the detailed summary and the figures of the '430 Patent; is that right?

A Yes, I did.
Q You were here in court all week, right?
A Yes.
Q All of last week?
A That's correct.
Q Is the detailed summary the invention?
A No, the detailed summary isn't the invention. The invention is the claim that comes at the end of patent.

In this instance, just claims 3 and 7 are at issue. So that's where we look to see the definition of the invention.

MR. SCHENKER: Mr. Fitzgerald, can you take us to the bottom of column 31 of the '430 Patent.
Q Dr. Jones, will you give us a high-level overview of the invention of claim 7.
A Yes. So this is -- the beginning of this is the preamble, and it talks about being able to automatically deploy a virtual processing area network in response to software commands.

And we'll see details of how that happens in the claim itself. But it's essentially talking about this assignment of logical servers to physical servers and doing that in response to software commands.

MR. SCHENKER: Can we turn to the top of column 32.
Q What's this first paragraph?

A This is laying out the physical hardware that underlies the system, and you can see it identifies computer processors. It identifies a control node, an internal communication network. And that control node being in communication with two external communication networks.

Q And the next paragraph starts, "Receiving software commands." What's going on there?

A This is laying out the software commands that are going to be received to specify the system. And we will go into details on these so that they're more clear what they are. But essentially this is the step of receiving those software commands.

Q Next are three paragraphs that start with the words "under programmatic control." Can you explain those to us?

A Sure. At a high level, this is the portion of the claim where it's responding to those commands to set up the system automatically.

Q And then I say three paragraphs starting with the word "wherein." What's happening there?

A These are describing how the system is configured with respect to messages that go through the system.

So -- and in particular, this is talking about messages that are coming from the servers and going to the two external networks.

And again we will go into detail on those.

Q Is claim 7 the only claim we are going to discuss today?
A No, we're going to discuss claim 3 as well.
Q And at a high level, how does claim 3 differ from claim 7?
A Well, claim 7 we saw was a method claim. That means it's a process. There are steps of the method claim.

Claim 3 is an apparatus claim. You can see it says "a platform." So it's going to describe an apparatus, or you can think of it as an apparatus, maybe a machine in some sense.

Q Now, Dr. Jones, while sitting in this courtroom last week, did you hear Cisco's counsel repeatedly bring up the fact that Egenera's patent application was published in 2003?
A I did hear that, yes.
Q Does publishing the patent mean anyone is allowed to copy Egenera's invention?
A No. Publishing the invention doesn't mean that it could be used by anyone without compensating Egenera.
Q So who may practice the invention of the patent once it issues?
A Egenera, or someone that it licenses to do that.
Q Thank you.

MR. SCHENKER: Mr. Fitzgerald, can you take us to PDX-10.4.

Q Dr. Jones, I'd like you to give us an overview of the accused UCS products.

MR. SCHENKER: Why don't we bring up Exhibit JTX-409.

Q Dr. Jones, what is 409?

A This is a Cisco presentation. It's a set of slides that Cisco has made, and its own overview of the UCS system.

MR. SCHENKER: Can we turn to page 17, please.

Q What is Cisco showing us here?

A This is a very high-level conceptual view of the UCS system, where Cisco identifies that it has the network computing, and various options to access storage.

A little further down toward the middle of the page it says "Dynamic resource provisioning." That's describing the ability to reconfigure the system to have different resources assigned to different logical servers.

Q And does Cisco itself identify the benefits of UCS?

A They do. They talk about the ability to have fewer servers, switches, adapters, and cables, as well as reduced power consumption and fewer points of management. In other words, fewer things in the system to keep track of and manage.

Q And what does that mean in terms of cost benefits to a customer?

A Well, obviously each of those things reduces the costs.

Some of them are purchases. Some of them are operational costs, like power consumption, or how much time you have to spend managing the system. And that's typically called "total cost of ownership."

MR. SCHENKER: Can we turn to page 20.

Q You see it says "building blocks"? What is being built?

A These are the building blocks for building a UCS system, and you put these together and form the UCS system, and we'll describe that.

Q So why don't we step through these.

MR. SCHENKER: Can we turn to page 36.

Q Dr. Jones, what is Cisco saying here about the UCS Manager?

A Well, here they've provided -- this is a screenshot of the UCS Manager. That's the program that's used to configure and manage the system.

So if you want to assign a logical server to a physical server, this is where you do that.

And this is describing that the -- it's the device manager for the family of UCS components, and that it enables stateless computing via service profiles.

MR. SCHENKER: Turning to pages 31 and 32, can we show those together.

Q Does Cisco describe stateless computing?

A They do. They're describing this in the context of

service profiles. Sometimes they'll call them "server profiles," but generally in more recent documents it's "service profiles."

The service profiles on the left are referred to as "server identities" because it describes the networking configuration, the boot policies, and storage options for a logical server that can then be assigned to a physical server, and that server will run with those attributes.

Q And if we look on page 32, does that provide some of the benefits of doing this stateless computing?

A It does. They're describing that you no longer have to more permanently configure these kind of attributes into the physical hardware. So that you can more easily move the servers, as we've talked about, from -- move the logical server to the physical server quickly so you can provision the new hardware dynamically.

Q Thank you.

MR. SCHENKER: Mr. Fitzgerald, can we bring up PX-AZC, now JTX-536.

**(Plaintiff's Exhibit No. JTX-536 received in evidence.)**

Q Dr. Jones, what is 536.

A This is another system Cisco presentation. It's a "Cisco Live" presentation that they make to customers and prospective customers and describe their systems in more

detail to those who want to learn how to use them.

MR. SCHENKER: Can we turn to page 20, please?

Q Dr. Jones, what is Cisco telling us here about the service profiles?

A They're comparing at a conceptual level the idea of a service profile is the identity of a server to SIM card for a phone. So with the SIM card for a phone, I could -- if my phone's compatible with it, I can move a SIM card from one phone to another phone to another phone, and that will give me the same identity. My phone number will come with me and other information on that SIM card.

Q Dr. Jones, is the service profile a physical device?

A No. Unlike the SIM card, the service profile is something that is in software. It can be sent down and configured to the device, unlike a SIM card, which is typically a physical entity.

MR. SCHENKER: Mr. Fitzgerald, can we turn back to JTX-409 page 20.

Q Dr. Jones what is the fabric case interconnect?

A The fabric interconnect is where the UCS Manager runs. It's responsible for managing the system through UCS Manager. It also is the connection point between the interior network of servers that we'll see and the exterior network.

Q Is that sometimes called the "F-I" or the "FI"?

A You will see it abbreviated as "FI." I will do my best to not continuously give you a bunch of acronyms.
Q Are there different generations of a fabric interconnect?
A There are three generations at issue here.
Q Does your analysis today, Dr. Jones, apply to all three generations?
A Yes, it does.
Q Looking at the screen here, what's the next UCS component you're going to tell us about?
A This is something called the fabric extender. And you will see two names in the documents there, F-E-X or FEX, and IOM. And those two are -- for our purposes, we will refer to them interchangeably. Its job is to, as we will see in the images, it's to connect the fabric interconnect to the blade server.
Q And what's the next component here after the FEX?
A This is a physical chassis. This is the enclosure into which you can slide various servers, so called blade servers. So you can slide them in and out of this. They are not permanently attached in it. So you can put different configurations of UCS servers in a blade chassis.
Q And can you tell the jury, what is a blade server?
A A blade server is a server computer that's designed to be inserted into a chassis, such as this. It's a computer.

MR. SCHENKER: If we can turn to page 50.
Q Does Cisco refer to the blade server as a "compute node"?
A They do. They do refer to it as a compute node in places in some of their slides, and that effectively is what it is.
Q And so it includes processors?
A It includes processors. You'll run operating systems on there. It has memory, network interface cards, or sometimes called in this context a V-I-C, a VIC.
MR. SCHENKER: Can we turn to the next page, 51.
Q Dr. Jones, what is Cisco showing us here on 51?
A This is one model of the blade server. As I say, it's a stateless design. It has two Intel processors, memory.
And towards the bottom you can see a reference to a "mezzanine adapter." That mezzanine adapter is where they can have the virtual interface card.
Q And what are the type of servers accused in this case?
A B series servers and C series servers.
MR. SCHENKER: Let's go back to page 20, please.
Q What's next in the list of the UCS components, Dr. Jones?
A These are the virtual adapters, which are a type of network interface card.
Q And what are virtual interface cards?

A These are -- the virtual interface cards are the network -- basically how the blade talks to the network, and they are Cisco products.

MR. SCHENKER: Can we turn to page 22.

Thank you.

Q Dr. Jones, this depiction was created by Cisco. Does this illustrate a typical arrangement for UCS?

A It does. It's showing us the blades in a conceptual format. The blades are connected to the fabric extenders at the top and the fabric interconnects further up in green.

MR. SCHENKER: Can we turn next to page 23.

Q We see here it says "Details." What additional details do we see in this image?

A This is showing us additional information about what's inside the various Cisco components.

And we'll go into some of these as we go along. But it's basically talking about the chips that are present in certain of these building blocks of the UCS system.

MR. SCHENKER: Your Honor, we have a poster board prepared of this image. May Dr. Jones set up the board and instruct the jury?

THE COURT: Yes, he may.

(Whereupon, the witness stepped down.)

THE COURT: If one of Cisco's attorneys wants to step over where you can see.

MR. PACKIN: Thank you, your Honor.

Q Dr. Jones, can you explain how, at a high level, this figure corresponds to the claims of the '430 patent?

A Yes.

So in these blades we have a layer of processors. And the processors in the blades -- we see here. We say x86. That's referring to the category of Intel processor, and the processors are depicted within the blades.

Further up we have the internal communication network. I will abbreviate that. The intern communication network consists of these fabrics extenders, and their connections to the physical interfaces of the blades.

And the fabric switches -- the fabric switches are the -- in this context we're to referring to the fabric interconnects.

The fabric interconnects within the claims are the control node. And the control nodes, you can see, are connected to an external storage network. Each one of them are connected to that.

And then this "LAN" is the external communication network of the claims.

Q And, Dr. Jones, do these hardware components correspond to the hardware components of the '430 Patent claims?

A Yes, they do.

Q What about the software commands of the claims that you

had shown us. Does the accused UCS system have software commands?

A It does. It receives software commands when the user is using the UCS Manager or a similar tool to ask the system be configured in a particular way. And those software commands are going to be sent into the fabric interconnects. So I'll just leave it at that.

Q Thank you.

Dr. Jones, can you also use this figure to illustrate the messages of the claim?

A Yes.

So the claim is talking about messages that are coming from the processors and traveling out -- ultimately out to either the external communication network or the external storage network.

Then we also have another message traveling out to the external storage network. And when they are doing this traveling, the claim's describing the operations that fit -- that the fabrics -- or the control node is configured to perform on. So those messages are going to undergo modification if they're going to either one of these two external communication networks.

Q Can you give the jury a high-level example of how messages are modified?

A Yes.

So I'll draw -- you will see a representation like this. People often represent computer messages for some reason as rectangles. And those often have what we call a "header," a "payload," and they may have something called a "trailer."

And so a message may be coming up from the servers in the UCS system and may be modified.

These headers have additional fields in them. One of those of interest, and we will see it in more detail, is something called a "VN tag." So messages on this, as they are leaving the servers and going up to the fabric interconnect will -- if they are going to the outside world, this VN tag is going to be removed.

So let me just label these so we can see what's going to be removed.

So the message going out will still have the payload, the trailer, and in terms of the header, you'll still have A and C, but the VN tag will be removed for messages leaving the system.

Q Dr. Jones, does this modification happen both for messages to the external communication network and the external storage network?

A Yes. The VN tag information is useful within the system, and it's used for messages coming from and going to the processors on the blades. But it's not used outside of

that. So it's taken off at the fabric switch.
Q Are there other modifications of messages that we will discuss today?
A Yes. There are a couple of other modifications.
One that we'll see -- I will summarize it as effectively removing and translating what's known as a VLAN ID into a VSAN ID. And it involves similar modifications. It's going to involve the removal of tags from a header and the insertion of new tags.
Another one involves something I'll call the conversion of FLOGI to FDISC. And again it's a similar modification. Part of the message is going to be changed. We are going to replace one command in the message with another command in the message.
Q Dr. Jones, can you tell the jury, what are those structures in the fabric interconnect labeled A and G?
A So these are chips that are -- or another word for these chips is A-S-I-C. Those application-specific integrated circuits. We don't need to know it, but at least we'll know when we refer to "ASIC" what we are talking about. It's a chip. ASIC doesn't mean a particular chip. It's just a class of chips in the field.
These are particular chips -- these chips here have been -- are Cisco chips. These are responsible for processing these messages and determining where they should

go. They'll be responsible for modifying them and passing it through either to the external network or perhaps to another processor.

MR. SCHENKER: Thank you, Dr. Jones. You may return to your seat.

Your Honor, may I move the board?

THE COURT: You may.

(Whereupon, the witness resumed the stand.)

MR. SCHENKER: Mr. Fitzgerald, can we bring up JTX-535, and let's turn to page 15.

Q Dr. Jones, is this here the ASIC structure that you were showing us on the poster board?

A Yes. This is providing a little bit more detail. The top portion of this, the top rectangle, shows the same structure generally as what's in the fabric switch up there. It's showing it for two generations, the first and second generations of the fabric interconnect. So you can see here it has, for example, Gatos/Carmel. The G corresponds to the "Gatos" on the board.

The "Carmel" is the second generation of what's known as the port ASIC chip. And the interior Altos/Sunnyvale chip connects those together.

At the bottom we can see that the servers, including processors, are sending messages up through the box.

The middle box is the fabric extender, the FEX or the IOM.

The Gatos chips, when they're on this -- what we call the ingress side of the switch, are receiving messages from the servers, acting as a bridge to carry those over to the Gatos chips for egress communications.

So the bottom, we can think of it conceptually as the bottom as being the ingress side and the top being the egress side. And these are the chips that are going modify the messages and get them to the right location.

MR. SCHENKER: Can we durn to page 25.

Q What is Cisco showing us here?

A This is more details about one of those Gatos or Carmel chips.

You can see there, conceptually at least, multiple lanes going up and down vertically. Those are -- each one those lanes can be connected to an interface via a MAC. So those are physical network interfaces.

Above that you see a layer of things called fw. Which also has a "lu" for "look up." That's responsible for determining the next place the message should go.

You see "buffering & queuing."

Then the messages go, in this version, out the top and onto their next destination.

Q And if we turn to page 17, what is Cisco showing us

here?

A This is the high-level view of the third generation of fabric interconnect. And there are two versions of this.

The main chip is the Trident 2 chip. This chip takes all those As and Gs that you see on the board and conceptually puts them into a single chip. Since it's a later-generation chip, it has more room.

In some versions they also have the Tiburon chip, and its responsibility is for physical interfaces to the -- what's known as fiber channel network.

MR. SCHENKER: Can we turn to page 33.

Q Does Cisco provide information about the structure of the third generation chip?

A They do. It's a Broadcom chip, and it provides a high-level view of how it operates.

On the left side -- you have to turn things around on the image, but those are the physical interfaces, both showing ones that are coming from the servers, as well as ones that can be configured going to the external network. So those are the physical network interfaces.

It's broken up into two conceptual pipelines here. One is an ingress pipeline, and that effectively corresponds to operations that we saw for the Gatos ingress chip.

And there's an egress pipeline. You can see in that pipeline it has packet modification. That's the

portion that conceptually corresponds to the egress Gatos chips.

Q Thank you.

MR. SCHENKER: Mr. Fitzgerald, PDX-10, slide 7, please.

Q Dr. Jones, what's the next section of your testimony?

A In this section I'm going to show the analysis and evidence for why the Cisco products, UCS products, infringe claims 3 and 7 of the patent.

Q Is this section going to take a little bit of time?

A It is because there is a lot of evidence to show and a lot of claim limitations.

Q And during this section, are we going to discuss claims 3 and 7 together?

A Yes. We'll take them both at the same time.

MR. SCHENKER: Why don't we turn to slide 6.

Q Dr. Jones, can you explain to the jury the technical background for someone studying this patent?

A Yes. A person -- what's sometimes called in patent trials, a person of ordinary skill in the art would have bachelor's degree in computer science, along with five years of experience in computer system development related to network computing and storage.

And, you know, you could have more experience to compensate for less education. There are lots of examples

of people in computing who don't have a Ph.D. or BS who did pretty darn well.

MR. SCHENKER: Why don't we turn to slide 8.

Q Dr. Jones, what's the first element of the claims you are going to discuss?

A That's what's known as the preamble. It's the beginning. And we are going to look at the preamble for claims 3 and 7.

The preamble reads for claim 3, "A platform for automatically deploying at least one virtual processing area network in response to software commands, said platform comprising..."

Claim 7 is "a method of automatically deploying at least one virtual processing area network in response to software commands. Said method comprising the acts of..."

Q Has the Court construed the preambles here?

A Yes, the Court has provided definitions for some of the terms in the claims. Here it's provided a definition for "virtual processing area network," as well as within that definition a definition of computer processors as CPU.

Q Did you apply the Court's constructions throughout your analysis?

A Yes, I applied all the Court's constructions during my analysis.

Q And note the term -- I think we've all seen the

processors come up several times. Did you apply the construction of CPU consistently throughout the claim?

A Yes, I did.

MR. SCHENKER: Can we bring up JTX-240, please.

Q Dr. Jones, what is JTX-240?

A It's Cisco's document describing the UCS Manager at -- most of it's at a high level. It's a data sheet for UCS Manager.

MR. SCHENKER: Can we turn to page 2 and highlight that portion on top.

Q Dr. Jones, what is this portion telling us with respect to the preamble of the claims?

A So it's telling us that the service profile consists of a software definition of a server and the associated LAN and SAN connectivity that the server requires.

When a service profile's associated with a server, UCS Manager automatically configures the server, adapters, fabric extenders, and fabric interconnect to match the configurations specified in the service profile.

So this is telling us that the system that the user wants for the definition of the servers is going to be defined in these service profiles, and that there are a software definition, a logical definition, of it, and that includes their connections to the external communication network and external storage network, and that this idea of

associating a service profile with a server.

That's when the service profile -- you say, I want to put this logical definition in. Put this on a physical server so it will be configured that way.

And when that happens, UCS Manager automatically configures the system, not just the server, but fabric extenders fabric interconnects in the way that was described in that service profile.

Q Thank you.

MR. SCHENKER: Can we bring up PX-BJC, page 13, and let's blow up that screenshot, please.

Q Dr. Jones, what is this demonstrative?

A This is from the experiments that I did on this UCS test bed. So I went through the proses of configuring the system and observing its operation.

In this example, I had set up a service profile, and then I'm assigning it to a particular processor. And this is a screen where I can go to that server assignment box, and I can choose where I want to assign that defined service profile.

If I were to ask for it to be assigned a particular server and eventually hit "okay," that's going to issue a software command that the system is going to receive and allow it to set up the networking and configure the server for that profile.

Q And, Dr. Jones, you mentioned that it was testing that you had done -- you had performed tests on an actual UCS system; is that right?
A Yes. I assembled a small UCS system with all the relevant components and put that together and then was able to take screenshots of the operation, as we'll see later, also get log files that it creates that describe what happened in the system as well as network captures.
Q Thank you.
MR. SCHENKER: Can we turn to JTX-202.
Q Dr. Jones, what is this exhibit?
A This is the Project California book that we heard about last week. It's at early book published by Cisco describing UCS.
MR. SCHENKER: Can we turn to page 210.
Q What is this showing us, Dr. Jones?
A This is a screenshot of the UCS Manager from that book, and it's showing that I can -- when I am looking through UCS Manager to manage the system, I can see here that four of these servers have been associated with a service profile.
MR. SCHENKER: Can we pull up JTX-416, please.
Q Dr. Jones, what is Exhibit 416?
A This is a Cisco Live presentation, one of the presentations they make to customers.
MR. SCHENKER: Can we turn to page 18 and blow up

that figure.

Q Dr. Jones, what is this showing us?

A This is showing details of the insides of the UCS Manager, or the conceptual organization of that software.

At the top we can see the very small image of that gooey graphical user interface that was used to, say, set up a service profile. That's going to send commands down to the yellow box there.

And inside that -- we'll go through the details of this more later, but what -- the takeaway from this is when you look at the bottom, the yellow box, which is the UCS Manager, running on the fabric interconnect, is configuring portions of the system. And it's doing it through what they call these agents. And it's able to configure every aspect of the system.

The specific agent names here are conceptual, we will go through some of the actual ones later. But you can configure the fabric extenders, the fabric interconnect, servers, the interfaces on those servers, processors, everything in that system there.

Q Thank you.

MR. SCHENKER: Can we pull up PX-AVC?

This is now JTX-537.

**(Plaintiff's Exhibit No. JTX-537 received in evidence.)**

Q Dr. Jones, what is AVC?
A This is an internal confidential Cisco presentation describing the -- well, providing the information about the virtual interface card.
MR. SCHENKER: Can we turn to page 3, please.
Q Dr. Jones, what does Cisco tell us here about UCS being a software simulated network?
A Well, this is addressing the fact that the virtual interface cards are programmable fabrics that interconnect the system, and they interact with and require things like firmware and host operating system drivers.
Q Thank you.
MR. SCHENKER: Can we turn to JTX-408.
Let's turn to page 74.
Q Dr. Jones, what is Cisco telling us here?
A So focus mostly on the right side of this. We will look at this slide again later.
This is showing the interconnection, or virtual or logical links that get established in -- when you're configuring a service profile to set up a server. Those links go through the physical fabric, but you can set up multiple logical links.
So on the right side you see that pipe looking thing. That's representing the physical underlying network. And that green link corresponds to a connection from the

fabric down to the blade. And that's one such link.

But over this same connection you can set up as many virtual links as you want, and the links go from and are exposed to the operating system on the blade running on the processor, and go up to the fabric interconnect.

So there is a physical network everywhere, but when the processors want to communicate, they do so through these virtual links that get set up so that you have the interconnection you want.

Q Thank you.

And, Dr. Jones, does that take us through the preamble of the two claims?

A Yes, it does.

MR. SCHENKER: Can we turn to PDX-10, slide 10.

Q Dr. Jones, what's the next element you're going to address?

A These are elements 3a and 7a, and these address the computer processors connected to an internal communication network. And 7a also has the limitation that the control node is connected to an internal communication network.

Q Looking at the next slide, did the Court instruct us on any of the meanings of the terms?

A Yes, the construction for computer processor. We are going to see that throughout.

MR. SCHENKER: Let's turn back to JTX-408, page 15.

Q Dr. Jones can you explain what Cisco is saying here with respect to this claim element?

A For this claim element, it essentially matches what we have on the drawing up here at a conceptual level. Looking on the left side, the physical network, which extends from the IOM to the physical interfaces of the -- what is called the switch there, which is the fabric interconnect, and the blade and its adapter at the bottom.

That's the inner connection -- that's the internal communication network, and it connects both the FI, which is the control node, to the blades where the processors are.

And it is, you know, what we are showing on the left side is it's showing one conceptual connection. Of course, there can be many blades, and each one of them is connected through this physical internal communication network.

On the board you can see two blades, but there will be many more blades in a typical system.

Q Thank you.

MR. SCHENKER: Let's bring PX-AMN.

That's now JTX-538.

**(Plaintiff's Exhibit No. JTX-538 received in evidence.)**

MR. SCHENKER: Let's look at pages one to two next to each other, Figures 1 and Figure 3.

Q Dr. Jones, what are we seeing here?
A Well, this is from a data sheet of one of those virtual interface cards, which we'll also see the term "adapter." Think of it as a network adapter.

So we see the adapters on the board. This is one of those. It's, as we see in the Figure 1, it's a computer card, a printed circuit board with chips on it. And it goes inside of the blade.

On the right side it's showing the conceptual way it operates. This roughly corresponds to the figure on the board, but the virtual interface card is in the middle. And we see those pipes in the middle. Those are the physical connections, and within those there are multiple virtual connections going down from the processor up into the -- at the top, the fabric interconnect. And ultimately it allows it to communicate as well with external storage and communication networks.

Q Thank you.

MR. SCHENKER: Mr. Fitzgerald, can we turn back to JTX-409, page 5.

Thank you.

Q Dr. Jones, what are we seeing here?
A This is a block diagram of one of the blade servers, and there's more details in the blade server than this, but this is from Cisco's technical overview.

You can see two processors at the top.

The green things next to them are memory. They connect to parts of the -- what's called the Intel chip set IOH and ICH. We won't have to go through those a lot, but those are how this version of the processor connects to the virtual interface card.

You see the connection. The bold or thicker arrow at the bottom with the label "PCIE" on it going to the mezzanine card. That mezzanine card is where the virtual interface card would be.

And we'll go into more details about that connection later, but this is showing that the processor is connected to that virtual interface card.

Q Are these all designed to operate together?

A Yes, the virtual interface cards are designed to operate within these particular servers, and the blade itself is designed specifically to support these virtual interface cards.

Q Thank you.

MR. SCHENKER: Can we turn back to PDX-10, slide 10.

Q Dr. Jones, I understand you talked about 3a, but what about the control node that we see in 7a?

A Well, that control node is the fabric interconnect, and as we saw in that evidence on the board, it's connected to

the fabric extenders from the top.

So that control node -- and it says, at least one control node. So in most of the figures we are going to see two control nodes, but only one control node is required for the claim limitations.

Q Thank you.

Can we turn to the next limitation, Dr. Jones.

A Yes.

Q What element are we going to talk about now?

A This is elements 3b and 7b.

Q And why do you highlight the bottom of 3b here?

A Well, this is something that we've really already addressed. Remember 7b had that limitation that the control node was connected to the internal communication network? This is indicating -- we've already addressed that for 7 and we've already addressed the evidence for this highlighted part that's in 3b here. So we just need to consider the first two parts at this point.

Q And focusing on the rest of the claim language, did you find evidence of this in Cisco's accused products?

A Yes. This is describing -- even as we can see on the board, that the control node or fabric interconnect is in communication with an external communication network, for example that LAN, and an external storage network having an external storage address space, which we can see in this SAN

examples up there.
Q And for this limitation there are no new constructions for us to discuss, are there?
A That's correct.
MR. SCHENKER: Can we turn back to Exhibit 408, slide 14.
Q Dr. Jones, what does Cisco tell us here with respect to network connectivity?
A Well, this is similar to the board. It's another Cisco diagram with the physical parts of the system. And we can see that the labeled FI or fabric interconnects here are designed to connect to external storage networks, an example here is SAN A or SAN B, as well as external communication networks, labeled here ETH-1 and ETH-2.
Q Thank you.
MR. SCHENKER: Let's turn back to PDX-10, slide 14.
Q Dr. Jones, what's the next element we are going to discuss?
A These are elements 3c and 7i.
Q Why are we discussing 3c and 7i together?
A Well, the order of the -- there's a little bit of jumbling in terms of the -- these are different claims. So they order things slightly differently.
But these two elements from the claims are talking modification of the messages, and so we're going to take

them both at the same time.

MR. SCHENKER: Can we turn to the next slide.

Q Dr. Jones, did the Court instruct us on the meaning of any terms in this element?

A Yes. We have construction for "CPU" that we've seen before.

But the Court has also construed the highlighted in blue, the phrase beginning, "logic to modify said received messages," as what's known as a means plus function term. And the Court provided the function down at the bottom, which mirrors what's in the claim language as well as the structure to perform that function, also shown at the bottom of the slide.

Q Thank you.

Now, both of these elements require -- in 3c and 7i, both of these elements require modifications of messages; is that correct?

A That's correct.

Q But does the Court's construction of the means plus function term apply to 7i?

A No.

We will see a few more means plus function terms. Those construction and their structure only apply to claim 3. Claim 7 doesn't have those additional constructions.

Q Now, Dr. Jones, the modifications that we see here in the claim, are those the modifications you explained to the jury in your overview at the board?

A At a high level, yes.

MR. SCHENKER: Why don't we turn to JTX-535, page 115.

Q Dr. Jones, can you explain what we are seeing here?

A Yes. This is from another of Cisco's design documents. This is showing the detail version of what I showed on the board with the VN tag.

We see a frame here at the top without a VN tag. We can see it has the header portion, that includes things like a destination and source address, another tag, and then a payload.

We see the VN tagged version, where that VN tag is in between the source and this 802.1Q. It's called a "tag" in the header.

The specific layout of that VN tag, it's fairly short, is shown below. That specific layout isn't important for analysis. This is just showing what the document shows about each of the two messages, with and without the VN tag.

Q Thank you.

Now, Dr. Jones, I would like to next discuss with you what's marked as PDX-12, which is Exhibit 23 to your report.

Can you talk to the jury just what the exhibits to your reports include?

A These -- the set of exhibits to my report include results from my use of the UCS test bed, as well as analysis of the UCS system. Those results include things like the screenshots from the UCS Manager, as well as log files collected from the system, and network captures, where I was able to observe the network traffic going in different parts of the system, collect that, and then analyze it.

Q And will we be looking at screenshots and log files and network capture results from your experiments?

A Yes.

MR. SCHENKER: Can we turn to page 30 and blow up the properties box here.

Q Dr. Jones, what are we seeing here?

A This is from one of those screenshots. This is showing configuration information in the UCS system. In particular, this is showing that there is a virtual network interface, or VNIC, set up on a particular blade, that it has a particular MAC address. That MAC address starts with 1414 and ends in 2F. And it has a name, VNIC-1, and it's a virtual interface.

And that's showing the view from UCS Manager, so that's what the control node thinks has been done.

MR. SCHENKER: And can we turn to page 31.

Let's blow up that picture -- that box in the middle.

Q What are we looking at here?

A This is showing the operating system running on a processor of a configured blade. And it looks like a little bit of gibberish, but basically I issued a command to ask it to show me the information about what it sees for the network interface.

And up at the second line -- or third line in the image beginning with "ENP," that is describing characteristics at a high level of that network interface. That's virtual network interface.

And if we look over a little bit to the right on that line, beginning with "HWADDR," we can see that same MAC address now is -- the operating system knows about it. The processor knows about it. It's that 1414 ending in 2F address.

Q Thank you.

MR. SCHENKER: Mr. Fitzgerald, can we put pages 36 and 38 side by side.

Q Dr. Jones, what are we looking at here?

A Here I've provided information from the network captures.

So on the left side I captured a message traveling from the servers that's destined for the external network, and it is showing the VN tag.

If you look on the left side, you see "virtual network tag" about -- a few lines down. This is the message as it's going to the control node.

Then if you look over to the right, we see the VN tag has been removed from the message, and at the bottom we can see a field called CRC, which is used for error correction, has been updated. But the VN tag is out of the message now.

And that's what we saw in the Cisco documents, as well as the description on the board.

Q Now, Dr. Jones, what we're seeing here on the left, is that going into what you called the ingress side of the fabric interconnect?

A Yes, that's coming from the servers.

Q And on the right is what you showed on the egress side?

A Yes. That's after it has left the control node. That's what the message looks like.

Q Thank you.

MR. SCHENKER: Why don't we go back to PDX-10.

Q Dr. Jones, does Cisco's engineers confirm that this happens in the fabric interconnect?

A Yes. We heard this from Mr. Chen last week, where he was describing that if a PAC has been processed by the FI and it knows that it's going to the up link, the up link is the egress side to the external networks, then the VN tag is

stripped out, and then the message is sent out.

MR. SCHENKER: Mr. Fitzgerald, can we go to PDX-12, page 16.

Q Dr. Jones, does this show the VN tag's removal and the mapping of the VLAN ID to the VSAN ID as you explained in your overview?

A Yes. This is showing -- this will show -- this is the message going from the processors and is destined for the external storage network.

But this is the message before it reaches the fabric interconnect. And you can see it still has the VN tag, and it still has, right below that, the 802.1Q VLAN tag is also present.

MR. SCHENKER: Mr. Fitzgerald, can you put this up side by side with page 68.

Q So that was what you showed us on left.

On the right, Dr. Jones, can you explain to us what we're seeing?

A Yes. This is the message after that information has been removed, and this is in the instance where the external communication network is what's known as "fiber channel." So you can see at the top on the right side just the portion for fiber channel is there; that you can see that was present in the original message on the left side much lower down.

And that's because the fiber channel is being carried -- it's actually a little bit further down.

That's because the message is being carried in fiber channel over Ethernet within the system. That's sometimes abbreviated FCoE. Just think of it conceptually as instead of carrying it physically on fiber channel, it will carry it physically on Ethernet.

And then the control node, if the external network is fiber channel, which is just a different way of sending information on the network, it will just put that information out and strip out the rest.

Q Thank you, Dr. Jones.

MR. SCHENKER: Why don't we turn back to PDX-10, slide 18.

Q Did Cicso's engineers confirm this as well?

A Yes.

What -- this is again testimony from Mr. Chen. And what he is indicating is what we saw there, that -- on that right side, the VSAN tag has been inserted. And that occurs, as we see in the lower question, This operation is -- well, it's associated with what we call port trunking. We will get into that a little bit more later. But that the fabric interconnect can do that operation in both of its modes of configuration.

We'll cover this idea of FC switching and NPV mode

later, but those are two modes of operation of the FI, and in both of those port trunking can happen.

Q Thank you, Dr. Jones.

In addition to the VN tags and VSAN IDs, are there other modifications that you saw?

A Yes. An additional one is the modification of FLOGI to F-D-I-S-C or FDISC.

MR. SCHENKER: Mr. Fitzgerald, can you take us to PX-BAS.

That's now JTX-539.

(Reporter interrupts.)

**(Plaintiff's Exhibit No. JTX-539 received in evidence.)**

MR. SCHENKER: Let's turn to slide 17.

Q What does Cisco tell us about this FLOGI to FDISC conversion?

A It's telling us that it happens in what's called the N-Port virtualiser or NPV mode. And this is a mode of operation for the fabric interconnect. And in that mode of operation, we can see on the interior two bullet points in the middle, that the FLOGI is going to come from the servers, and the fabric interconnect will convert it to FDISC, because it has already communicated with that switch on the right.

And we will see a little bit more detail on that

converse in the next slide.

MR. SCHENKER: All right. So can we turn to slide 21. What is this showing us?

A So we can see in the middle it says "NPV converts FLOGI to FDISC." That's just converting the command in the message from one command, FLOGI, to another, FDISC.

On the left side we're seeing that the server at the bottom is connected to the middle, which is the fabric interconnect. And that's associated with what's called a virtual storage area network on the top.

We will get into more detail on that later, but the conversion happens at the fabric interconnect.

MR. SCHENKER: Can we turn to the next page.

Q Does Cisco recommend using this NPV mode?

A Yes. We can see -- this is its slide with recommendations for FC and FCoE. Remember that's just fiber channel and fiber channel over Ethernet, two ways of communicating with the storage network. And it indicates that this is the default mode of operation as well as the recommended mode of operation.

Q Thank you.

MR. SCHENKER: Can we turn back, Mr. Fitzgerald, to PDX-12, slide 52 and blow up that portion in the middle.

Q Dr. Jones, is this evidence of the translation you just described?

A Yes. This is another one of the network captures, and this one's a little easier to look at.

In the first row, you can see the FLOGI message, and then, of course, bonding PAC is captured in the next row on the egress side, and that's been converted to the F-D-I-S-C message.

MR. SCHENKER: Turning back to PDX-10, slide 19.

Q Did Cisco engineers confirm this modification takes place?

A Yes. This is more testimony from Mr. Chen, and he's indicating that it will send out the FDISC message and try to get -- what he's saying here is the FDISC message is going to try to get the same information as FLOGI. It's just being converted for a 2F disc.

Q Thank you. Dr. Jones.

MR. SCHENKER: Can we turn back to slide 15.

Q Dr. Jones, can you tell the jury whether Cisco's accused UCS products have the claimed structure from the Judge's construction?

A Yes. We see the structure at the bottom here. That structure is present in the fabric interconnect, and I'll go through that in detail.

Q To be clear, is this structure required for claim 7?

A This structure is required for claim 3, but it's not required for claim 7.

So what we are about to go through for the structure is for claim 3.

MR. SCHENKER: Can we turn to JTX-1, Figure 3B.

Q Dr. Jones, what does the '430 Patent show us for the virtual LAN server, virtual LAN proxy, and physical drivers?

A So we see in the middle of this figure that's a part of the specification of the '430 Patent, it identifies the virtual LAN server, 335, and that is sitting between incoming messages from the servers at the top and the external communication network at the bottom.

But in between the LAN server and the virtual LAN -- or in the physical network is the virtual LAN proxy, which is also part of the structure, as well as the -- well, the virtual LAN server above is part of the structure, and then the structure requires a physical LAN driver. There are two in this image, but only one is required. And that's the connection and communication with the external communication network. So like 345a could be the structure for the physical LAN driver for this limitation.

Q And turning to Figure 6, what about the storage configuration logic for messages going to the external storage network?

A So that we can see sort of in the bottom left in this figure in box 605, storage configuration logic. That sits between the processors and the external storage network, and

it's responsible for modification of messages.

Q Thank you.

Dr. Jones, starting with the structure for modifying messages to the external communication network, did you find that in Cisco's accused UCS products?

A Yes, I did.

MR. SCHENKER: Mr. Fitzgerald, can we put pages 15 and 25 of JTX-535 -- thank you.

Q Dr. Jones, are these the structures you were referring to on the board up there?

A Yes. We've gone through these structures already, but let's map them to the structures of the claim.

So on the ingress side, coming from the servers, the bottom chip, the Gatos/Carmel chips in the first and second generation, are the virtual LAN server that acts as a bridge between the incoming messages from the servers to the LAN proxy and ultimately out to the external communication networks.

The virtual -- sorry. The physical LAN interface are the MACS and connections to the external networks coming out of the top Gatos/Carmel chip on the egress side.

And then finally the virtual LAN proxy is the Gatos/Carmel chip on the egress side where the message modification is occurring.

And so those would be -- the top Gatos/Carmel chips

would be the virtual LAN proxy.
Q And turning to the next page of this document of 535, 26. What does Cisco explain about this modification that takes place in the egress ASIC?
A So this is describing the operation of the FW processing engines within the Carmel and Gatos chip, saying they can extract fields.
And then if we look at the second line, it indicates that it inserts, removes and rewrites headers. And that's what we've been describing here, for the three modifications that involve combinations of inserting, removing, and rewriting headers.
Q Does Cisco teach that this is true for both of the first and second generation fabric interconnect?
A Yes. It's teaching them together. In those images where we see Gatos/Carmel, it's treating both generations and indicating they act in a similar way.
MR. SCHENKER: Can we turn to the figure on page 33?
Q What does this tell us about the third generation fabric interconnect?
A This is addressing the Trident chip, which is that third generation.
As we discussed, on the left side we see the physical LAN interfaces for the particular interface that

connect to external networks. Those include the serialization of the messages going out of those interfaces.

The ingress pipeline, acting as a bridge from the internal communication to the external communication and LAN proxy, that is the virtual LAN server.

And then the virtual LAN proxy is the egress pipeline, which includes the packet modification, and the packet modification is what we've been talking about. It's the modifications described on the board and elsewhere.

Q Thank you.

MR. SCHENKER: If we go back to pages 15 and 25 side by side.

Q Dr. Jones, did you also find that the accused UCS products include the structure for modifying messages to the external storage network?

A Yes, I did.

As you see here in Gatos/Carmel, there are multiple pipelines. When one of these chips on the egress side is connected to an external storage network, then it's serving as the structure for the storage configures logic 605 because it's doing the modification of the packets.

Q Thank you.

MR. SCHENKER: Can we turn to PDX-10.

Q And, Dr. Jones, does Cisco confirm this is true for all three generations of the FI?

A Yes. This is again testimony from Mr. Chen, and he's being asked about the general organization of the switch components and fabric interconnect and whether those have changed from generation to generation, and at a high level he agrees that it has not changed.

Q Now, do you understand that Cisco has argued in this case that the VN tags, VLAN IDs, and VSAN IDs that you discussed are not addresses, and, therefore, according to Cisco, this element is not met?

A I do understand that argument.

Q Do you agree with Cisco?

A I don't.

These VN tags, VLAN IDs, and VSAN IDs are used to route and deliver messages to the correct locations. They act as addresses within the UCS system. And I have seen evidence of that throughout these documents.

Q Do you also understand that Cisco is arguing that they get around the Court's construction for this element because ASICs cannot be the structures?

A I do. I disagree with that.

The structure's identified virtual LAN -- for example, storage configuration logic, or virtual LAN server, those structures are present in Cisco's systems.

Cisco points to a difference between whether they execute on a CPU or execute on an ASIC, that difference is

not substantial.

We've seen the evidence that the ASICs are programmable, that they are software configured, there are software tables within them. They include execution engines. So any difference there is insubstantial.

MR. SCHENKER: Next slide.

Q Did Cisco's engineers support this understanding?

A Yes.

Mr. Chen, again in his testimony, indicated that from a software perspective they program certain tables, and those tables are then used by FW or some other module inside the ASIC.

So FW is one of those modules we saw, for example, in the Gatos/Carmel chip.

Q Thank you, Dr. Jones.

Does this mean we can move to the next element?

A Yes.

MR. SCHENKER: Why don't we turn to slide 21.

Q What is the next element we are going to discuss?

A This is element 3d and 7c, and this is describing those software commands that I discussed earlier. And this is describing one of the software commands, the one specified, a number of processors for a virtual processing area network.

MR. SCHENKER: And next slide.

Q Are there any new constructions we need to address here?
A No new constructions.
MR. SCHENKER: Mr. Fitzgerald, can we pull up PX-BJK.
Q Dr. Jones, what is BJK?
A It's one of the exhibits in my report for showing the process of associating a service profile with a server pool.
MR. SCHENKER: Turning to page 2, let's blow up that screenshot.
Q What is this showing us here?
A This is one of the screenshots or one of the screens you see a long the way. So this is associating a service profile. Again, that's that description of a logical server, and I'm saying I want to put it on a particular -- or a physical server.
In this case I say I want to put it on one of a pool of servers. So I could have said, I have this pool of servers over here, and some of them are unassigned. And I can say, well, just get one for me, and make it be this particular logical server.
Q Thank you.
MR. SCHENKER: Can we turn to PX-BJH.
Q And, Dr. Jones, is this another exhibit from your report?
A Yes. This is an exhibit that describes where I can

create multiple service profiles from one template and send them all out to a pool at the same time.

MR. SCHENKER: Can we turn to page 3.

Q What is this screenshot showing here?

A This is showing that -- a screen along the way where I can specify -- the important part is at that bottom. I can say, How many servers do I want from a particular pool?

In this case I said two, but you can specify as many as were in that pool.

MR. SCHENKER: Let's turn back to PDX-12 page 3. Let's blow up the middle portions there.

Q Dr. Jones, did your investigation confirm that the FI receives these software commands?

A Yes. This is from basically captures of the traffic that is being received by UCS Manager on the FI or control node.

And this is a command. The command here is called "config" and then C-O-N-F-M-O-S. We're going to see that a few more times.

It's indicating the name of the logical server on the second line. I just called it "new profile," and then it is binding that profile to a particular physical server on the third line. It's the first blade in the first chassis.

MR. SCHENKER: Can we turn to the next page and

blow up his capture results.

Q Dr. Jones, what are we seeing here?

A Another version of that command.

In this case I'm associating the profile, new profile 2 on the second line.

And on the third line you can see that it's indicating that I want to select the server from a pool of servers.

MR. SCHENKER: And if we can turn to the next page and blow up the capture results there.

Q Dr. Jones, what are we seeing here?

A This is again that config CONFMOS command.

Here I'm indicating that a template -- a template is just a way of something from which multiple service profiles or logical servers can be generated. So, for example, I don't have to type out or click on each one.

And it's saying I want to associate that with a pool of physical severs.

And following that command there is another command called "lsInstantiateNNamedTemplate." It's just another command going to the FI. And it's going to indicate all the profiles that I have -- that are created and then are associated with physical servers.

So you can see that on -- in that second box over to the right on the second line begins "innameset." And

then you see from Template 1. And then on the third line, from Template 2. And then the end of that set.

So I specified two servers, and then there are -- I'm sorry, two profiles to be associated with two servers. So I have two in this set. If I specified five, then there would be five in that set in this command.

Q Dr. Jones, if we are associating service profiles with servers here, why do you say this shows specifying a number of processors for a virtual processing area network?

A Well, each server has -- first of all, has processors in it. And the number of processors for each server is known in the system. So if I specify one server, and that server has two processors, then I specified two processors. Or if I specify two servers and they each have two processors, I've specified four processors.

MR. SCHENKER: Can we open JTX-525 and turn to page 30.

Q Dr. Jones what's that showing us?

A This is another version of selecting or associating a service profile to be sent to a physical server. And this is from Cisco Quick Start guide. And it's giving me a choice of available servers at the bottom. And if you look at column four in those choices, it's telling me how many processors are available on each one of those servers, as well as how much memory and how many network adapters they

have.

All that information is known to UCS Manager because one of its functions is to go out and discover everything about the system.

So it goes and does what's known as discovery. It finds all the processors, information about the processors, information about the network interface. Every physical thing in the system it discovers and is responsible for managing, as well as all the logical information as we'll see.

Q Now, Dr. Jones, is it your understanding that Cisco argues they can get around the claim because their software commands don't include a numerical value of the CPUs?

A I believe that's an argument they have made --

As I said here, I don't agree. The command requires specifying a number of processors for a virtual process area network, and that's what these commands are doing, as I just explained.

The differences between what Cisco is describing and what I am describing are insubstantial.

In both cases you're indicating the number of processors that are desired.

You're indicating to the system what is being transferred is information to the UCS Manager, and the UCS Manager is going to create the virtual processing area

network with the number of processors.
Q So does that mean we can move on to the next claim element?
A Yes, it does.
Q Marching along here.
MR. SCHENKER: Turning to PDX-10, slide 23.
Q What's the next limitation we are going to discuss?
A These are elements 3e and 7d. And this is another one of those commands. This one is specifying a virtual local area network topology defining interconnectivity and switching functionality among the processors of the virtual processing area network.
Q Next slide.
Are there any new constructions we need to address here?
A No. The same constructions apply.
Q Great.
MR. SCHENKER: Can we bring up exhibit -- sorry. Can we bring up Demonstrative PX-BIW.
Q What is BIW?
A These are another exhibit from my report that describes -- creating what's known as a MAC address pool.
A MAC address pool is a set of network addresses that can be selected from when creating these virtual network interfaces that we'll see.

MR. SCHENKER: Let's turn to page 5.
Q What are we seeing here Dr. Jones?
A This is a screenshot along the way, and this pool of addresses, this pool of resources, that I've defined here includes addresses from -- starting with 14141 and going through 141440. So that's a pool of addresses now that I can assign to network interface --
MR. SCHENKER: Can we bring up PDX-BJA.
Q And what is BJA?
A Another exhibit. This one describes creating a template, just like the -- similar to the service profile templates, for a virtual network interface card.
So these are the logical or virtual network interface cards it created on the physical network interface cards of the blade servers.
MR. SCHENKER: And turning to page 3, what did your experiments show?
A This is showing that I can within the system assign that VNIC to participate in a virtual local area network, or VLAN. I can select which ones.
I can also select -- down at the bottom you can say, Choose the MAC address from the MAC pool that's been created, as well as other information about this virtual network interface.
MR. SCHENKER: Can we open DX- PJC.

Q And what is PJC?
A This is another exhibit to my report going through the creation of a service profile.
MR. SCHENKER: Can we turn to page 4.
Q What did your experiment show here --
A It's showing that I can configure how I want the networking to be on that particular server -- the service profile I'm creating for a logical server. And when this is sent down to the physical server, it's going to set up the networking as I've specified it in the various commands that we've been going through.
Q Thank you.
MR. SCHENKER: Mr. Fitzgerald, can we bring up JTX-182 and turn to page 84.
Thank you.
Q Dr. Jones, what is Cisco showing us here on page 84?
A This is from one of their operational run book guides. This is how they describe to customers how to set things up.
This is showing creating a virtual network interface card. This is the virtual card that will be created on the adapters of the blade. Here they've given it a name at the top, "ETH-0"
They've assigned -- they've indicated that its MAC address should be pulled from a particular pool of addresses, and they -- you see options for selecting various

VLANS for it to participate in, including in the middle of the screen, default, finance, human resource, as well as policies at the bottom.

This is describing everything about that virtual network interface card that should be set up ultimately on a server.

MR. SCHENKER: Can we turn to PDX-12 page 6. And let's blow up those pieces.

Thank you.

Q Dr. Jones, what are your experiments showing us here?

A Well, these are more of these config CONFMOS commands. Basically, every time you're making a change in UCS Manager to create some new logical entity, whether it's a service profile, or a VLAN, or a VNIC, a command is going to go to the UCS Manager.

The top command is associated with a VLAN. You can see over on the second line on the right, 152. So this is associated with setting up VLAN 152.

The bottom command, you can see MAC pool in that, and that's creating a -- it's associated with the command to create a pool of MAC addresses to be used with the VNICS. And this one matches the screenshot that I showed you earlier.

Q Thank you.

And, Dr. Jones, are we going to see more about

these network topologies in a later limitation?
A Yes. We'll describe more of how these relate to the network topology when we go to the limitation later on that sets up the network topology.
Q So, Dr. Jones, let's turn to PDX-10.
What's the next limitation that we are going to discuss?
A These are elements 3f and 7e. This is the last of the software commands in the claim. This is a software command for specifying a virtual storage space for the virtual processing area network.
Q And turning to the next slide, are there any new constructions we need to address?
A There are no new constructions.
MR. SCHENKER: Why don't we go back to JTX-182, this time page 81.
Q Dr. Jones, what is Cisco showing us here with respect to this element?
A Well, this is for creating a virtual HBA, or virtual host bus adapter.
This is conceptually like the VNIC. It's a virtual adapter, but this one's for communicating with the storage network.
And similarly there's a name at the top. There's a port name associated with VNIC at the top. There's a

specification -- or ability to specify a particular virtual storage area network in the middle. Right now it's set to the default. You can also create a virtual storage area network, a new one, that you want to associate it with.

But conceptually this is setting up the virtual adapter that is going to be talking to the external communication network from the server.

Q Thank you.

MR. SCHENKER: Can we open up PX-BIZ.

Q Dr. Jones, what is BIZ?

A This is another of my exhibits that shows the process of creating a VSAN, or virtual storage area network.

MR. SCHENKER: Can we turn to page 2 and blow that up.

Q Dr. Jones, what did your experiment show us here?

A Well, this is the creation of a VSAN. You see the names like VSAN-1100.

Two things of interest at the bottom. One is you give it an ID. In this case the VSAN ID that is used to identify that virtual storage area network is 1100.

And on the right you can see when an identifier, a VLAN ID of 2100 is used to identify the VSAN with -- when carried over virtual -- or, sorry, fiber channel over Ethernet.

Q Thank you.

MR. SCHENKER: Can we turn to page 7 and blow up that network capture.

Q Dr. Jones, what is this showing us?

A This is another one of those commands that when I enter new information into UCS Manager it's going to send a command that's received.

This is another config CONFMOS command. And you can see that this one, if we look at the second line, we can see it's talking about a VSAN.

And then on the third line we see the two numbers we were talking about, the 2100 for the fiber channel over Ethernet VLAN ID, and 1100 next to it. That's for the VSAN ID.

Q Now, Dr. Jones, will we discus the virtual storage space in more details in later elements?

A Yes, we will.

Q Does that take us through the rest of this element?

A Yes, it does.

MR. SCHENKER: Can we turn back to PDX-10.

Q What's the next element you're going to discuss, Dr. Jones?

A These are elements 3g and 7f, and these are addressing how the system is to respond to the software commands, and, in particular, to the first command for -- this is for selecting the corresponding set of computer processors for

the virtual processing area network.

So this is the way -- this is describing that the control node has to select the processors based on the command that it received.

MR. SCHENKER: Can we go to the next slide.

Q Dr. Jones, are there any new constructions we need to address here?

A Yes. The language highlighted in blue in 3g starting with "logic to select," is construed as a means plus function term. And the function and structure at the bottom, the function mirrors the language highlighted in blue, and the structure is a utility within management software 135 and equivalents.

Q Now, does this means plus function construction apply to 7f?

A No. None of the means plus function terms apply to the claim 7. So it's just for claim 3.

Q Thank you.

Dr. Jones, let's discuss this structure last.

Did you find this selection in Cisco's accused UCS products?

A Yes.

MR. SCHENKER: Can we turn to PX-BJK, please, page 5.

Q Dr. Jones, what did your experiments show us here with

respect to this claim element?
A Well, this is showing that after I entered this command to ask for a logical server to be associated with a physical server, that at that point UCS Manager is taking over. In fact, it's going to show me its progress in carrying this out. As part of that progress, it selects the server.
MR. SCHENKER: Let's turn back to PDX-12 again, pages 13 and 14 side by side.
Can we blow up those highlighted portions.
Q Dr. Jones, what are those portions showing us?
A These are log files that are created during the operation of UCS Manager, and it's -- here it's describing that it's handling the pool assignment. And that it has a new -- what's called a new binding. It's going to bind Profile 1, or assign it, to a particular physical server.
Q These are log files generated during your tests?
A Yes, they are.
Q Dr. Jones, does Cisco's source code provide further evidence that this limitation is met?
A Yes, it does.
Q Dr. Jones, I have here PX-BIA, which is Cisco's printed source card.
This is what you reviewed in this litigation?
A It is. I recall the blue papers. So, yes, I looked at those papers.

Q May I have the ELMO, please.

Can we, I'd like to show you source code page 463. Can you explain to the jury what we're seeing down here?

A So this is some of the source code for the UCS system, just a small part of it. And it's written in computer programming language known as C++.

Starting at line 58, you can see that there is what's known as a function that can be called by either parts of the system to do something. This function can select a physical server from a pool of servers that will -- that can be assigned, that's ready to be assigned to a logical server.

So the function begins at line 58 and then carries over for the next few pages.

Q So if we turn to page 465, is this where you're referring to?

A Yes. If we go -- sorry, go up a bit. Up a bit more. Bit more. There we go.

So what we're seeing here are what's known as loops. It's going to go through, and we can see the lines or the typing shown in all caps are comments where the programmer describes what's happening in, or what's meant to happen in this code, but the code is going to go through all members of the pool in this loop beginning with "while" on the left side, and then it's going to look at the -- each

one, its representation of each one of those servers and determine whether or not it's available, and whether it's ready for use, and eventually at the end of about five pages of code, it will hopefully find one and then report that server as being available for use. And this is an example of how this kind of assignment happens; an example of that Cisco source code that I analyzed.

Q Now, Dr. Jones, for the structure of this claim element, what in UCS is a utility within the management software 135?

A Well, the UCS Manager itself is something that includes many utilities. We saw that briefly when we looked at that breakout of the portions of UCS Manager in that yellow slide, but within those utilities, for example this source code, corresponds to the structure of a utility within the management software where it selects the processors, it's operating under programmatic control and operating as a utility within this management software.

Q Now, Dr. Jones, you understand Cisco has argued again that they get around this claim element because this portion of UCS Manager doesn't run outside the control node?

A I understand that argument. First, I don't agree that the structure is required to be in a particular inside or outside of the control node. That would be inconsistent with my understanding of the structure and its context within the claims, but also, there is no substantial

difference between how it operates in UCS within the control node and operating outside of the control node. There is no -- within the context of these claims, there's just no difference between the two.

Q Got it. Thank you, Dr. Jones. Can we return back to the computer presentation. Let's turn to PDX-10 slide 29. Can we turn off the ELMO. Thank you.

Dr. Jones, what's the next element you're going to discuss for the jury?

A These are elements 3h and 7g.

Q And what's going on here?

A Well, in this -- this is another response to a command. This is responding to the second software command, and in response to that command, it's going to set up the virtual local area network topology that was specified in that previous command.

Q Thank you.

MR. SCHENKER: And I apologize, your Honor. For the record, that was PX-BIA is now JTX-540.

THE COURT: Very well.

(Plaintiff's Exhibit No. JTX-540 received in evidence.)

Q All right. Sorry, Dr. Jones. Turning back to this limitation, this element, 3h and 7g, did the court construe the terms here?

A Yes, with the same structure for computer processor, and the language in blue in 3h has been construed as the means-plus-function term, where the function and structure are identified at the bottom of the slide.

Q Okay. If we can start again with the portion that applied to both 3h and 7g. Can we, Mr. Fitzgerald, please bring up JTX-408 again, page 74.

Dr. Jones, using this Figure from Cisco's documents, can you explain what the UCS virtual local area network topology is?

A Yes. The topology, which is effectively describing how the processors are interconnected, how they -- as well as how they can switch information to one another as well as externally, that topology is defined by the virtual links that are set up; these connections between the processors and the fabric interconnect and the data structures on that fabric interconnect.

So, earlier we talked about that virtual link traveling over the physical link on the right. If we look to the center figure, it's kind of upside down from our diagram here, but we have the blade or the server at the top. We have the operating system running on the processors of that blade, and we see that there are multiple virtual interfaces, virtual network interfaces designed there.

There are the things like ETH0 and ETH2 and ETH3,

those are all virtual network interfaces that have been created by UCS Manager, and all of those interfaces are known to the operating system so that it can communicate. It needs those interfaces and to know about them so it can send information over these virtual links that go over the internal communication network.

Q And the virtual NICs in this Figure, are they programmed?

A Yes. So the fabric interconnect, or the control node, is responsible for programming the virtual interface cards which also results in the operating system being programmed with the information that it needs to communicate with those virtual NICs, and more importantly, to be able to communicate with one another and the fabric interconnect.

Q And how are the processors programmed to establish topology?

A They're programmed when the operating system talks to the -- over this PCI bus that we'll talk about in more detail, but it gathers information about the devices, the peripherals that it has, and stores that in the operating system. At that point, it's programmed with that information.

Q Can we go to page 72. What is Cisco telling us here?

A This is describing basically what I've explained, that the operating system sees these PCI devices on its bus. In

other words, within the server, the processors are running the operating system, which is software, and it looks and says, What's been plugged into my computer, and it sees that, okay, I've got a virtual interface card, and then it looks and sees I've got a virtual network interface card. So that virtual network interface card, it will load what's known as device drivers. We've talked a bit about those.

Device drivers are how an operating system talks to a physical device, so there is a device driver in software, in UCS for talking to the VNICs. Little bit further down, we see that UCS, that the service profile controls the interface that the operating system sees. In other words, how the blade is configured, including its network interfaces, determines what virtual network interfaces are available to the processors.

Q Dr. Jones, can the processors communicate in the topology without the virtual links?

A No. If a processor, for example, has not been associated with a service profile, then it won't have any of these virtual links and it won't be able to communicate in that virtual network topology.

Q Can we turn to JTX-416 page 18.

Dr. Jones, how is the virtual local area network topology established?

A Well, it's established under the control of the UCS

Manager. UCS Manager is responsible for controlling, as we saw earlier, controlling and configuring and knowing about everything in the system, so when it receives the commands, this DME in the center is going to control the overall operation of configuring the system. So it will send out commands via various agents. These agents here are just representative of the various agents in UCS Manager, and it will configure the internal communication network; for example, the IOM effects as well as the virtual interface cards to set up the VNICs via these agents.

Q And will it configure the blades and the processors?

A Yes, they're agents that configure the blades, and part of that process is they control even to the extent of when the processor will be turned on to boot up the system and start up an operating system. They can determine where it starts up an operating system from all those things that can be configured as part of the logical or service profile.

Q Thank you. Can we bring up PDX-12 page 24, and let's blow up that middle portion. Dr. Jones, what is this showing us?

A This is showing operation of the agents on the UCS Manager operating on the fabric interconnect, and this is setting up data structures associated with a virtual network interface card that's being created, so ultimately, the virtual interface card is going to have to know about one

end of the logical link, but the switch on the fabric interconnect is going to have to know about it, and the UCS Manager is going to store information about all of that.

Q Can we turn to page 26 here and let's blow up that portion. Dr. Jones, what did your experiments show over here?

A Well, this is another segment of the log files. This one is associated with the agent, or AG associated with network interface cards, and it's indicating that it's on a particular virtual interface card creating a new part of a virtual link.

Q Thank you. Can we turn back to PDX-10 slide 31, please. Dr. Jones, did Mr. Jayakrishnan provide further evidence in support of your understanding during his deposition?

A Yes, he's confirming something we've already seen in evidence, which is in the context of a service profile being associated with a server, does the fabric extender or IOM get configured in any way. He indicates there is a possibility for the fabric extender to be configured.

Q Thank you. And how do you know that the processor is configured with the information from the virtual topology?

A Well, as we saw earlier when I was discussing the limitation, 3c, I showed that the Mac address, for example, appearing in the screenshot of UCS Manager, that same Mac address showed up when I was running the operating system on

the server and it knew about the VNIC, and it knew that, its Mac address, just like in UCS Manager.

Q Thank you. Now, Dr. Jones, the Court's means-plus-function construction for 3h has certain structural requirements, is that right?

A That's correct.

Q Can we turn to JTX-416 page 18. The first structure of the Court's construction was "control-node side networking logic 310." Did you find that in Cisco's documentation?

A Yes. This is the DME as part of UCS Manager. Its responsibility is, as I said earlier, orchestrating the setup of everything in the system and doing so within the control node or the fabric interconnect. It's responsible for managing the process and heading off to the agents the ability to set up these virtual links, as well as storing data structures as we see in the right side of this Figure, representing everything in the database on the right side.

Q Let's go to slide 15. Sorry, this is JTX-408 slide 15. Dr. Jones, the second structure in the Court's construction was the reliable virtual interface 212. Did you find that in Cisco's documents?

A Yes, I did. That is these virtual links that I've been describing, and in this Figure, we can see a virtual link going from the server at the bottom on the right side to this V in the, what's labeled 6200A, that's a fabric

internet, so this is one of the logical or virtual links that we've already talked about, and those correspond to virtual interface 212 in the construction.

Q Can we bring up JTX-406, please. Let's turn to slide 39. Now, the third structure in the Court's construction was Data Structure 910. Does Cisco's documentation show that the accused UCS products include Data Structure 910?

A Yes. The management information tree that, basically the storage of all the information in UCS Manager corresponds to Data Structure 910. You can see here representations of network interface cards, port configurations. Basically all the information about the system and its configuration is stored.

THE COURT: Can we stop here for the morning recess? We're just about at that time.

All right, jurors, let's take the usual 25 minutes and we'll come back.

THE CLERK: All rise.

(Jury and court adjourn.)

THE CLERK: All rise for the jury.

(Jury enters.)

(Court enters.)

THE CLERK: Resuming on the record, Civil Action 16-11613 Egenera v. Cisco.

THE COURT: I think we're all set.

DOCTOR MARK JONES, resumes the stand

DIRECT EXAMINATION, resumed**

BY MR. SCHENKER:

Q Thank you, your Honor.

Dr. Jones, before we broke, you had explained how this slide shows the management information tree maintained by the DME as Data Structure 910?

A That's correct.

Q Okay. Now, Dr. Jones, you were here for the opening statements last week, is that right?

A Yes, I was.

Q Okay. You were here for the entirety of trial so far?

A Yes.

Q Do you recall Cisco's attorney set out some "bedrock facts" he called them?

A I do.

Q Do you recall Cisco's attorney set out bedrock fact number three?

A Yes.

MR. SCHENKER: Can we put up the trial transcript from day one, page 67, lines 11-15 here.

Q And this is Cisco's attorneys bedrock fact number three, is that right?

A That's my recollection, yes.

Q Do you agree with Cisco's attorney here?

A I don't agree. As I've just shown, UCS does set up the network by programming the processors. It also programs the VICs but it also programs the processors.

Q Now, do claims 3 and 7 say that the NIC can't be programmed?

A No, each one of these claims is a claim that has the word "comprising" in it. So the claim isn't limited to only doing the things. You must meet all the limitations of the claim. But doing additional things doesn't mean you don't infringe.

Q So programming the NIC doesn't get around the claim so long as the processors are also programmed?

A That's correct.

Q Now, Cisco says here, We program the NICs. We design the NIC ourself. The NIC is not a CPU. We don't infringe this claim. Does that get them around claims 3 and 7?

A No. It doesn't. The programming the NICs, as long as you're programming processors as well, meets the limitations, and as I'll show, there is not a, there is no substantial difference between the way that Cisco is setting up the virtual and topology by programming the processors through the NICs, and there is no, well, there's no substantial difference between doing that and programming the processors as specified in the claim.

MR. PACKIN: Your Honor, I object and move to

strike under motion in limine number nine.

THE COURT: Allowed.

MR. PACKIN: Thank you.

MR. SCHENKER: Your Honor, Dr. Jones does refer to this argument in his report, paragraph 137 of this Exhibit.

THE COURT: Let's move on.

Q Can we turn to JTX-408, please. Looking at page 5 here, why is programming the NIC equivalent to programming the processors?

A As we see from this image, the processors are underneath these arrows in the middle where they're fans, and they're on a computer board that's communicating with -- we see these two slots on the right side, a mezzanine slot and a modular LOM slot; that's where the virtual interface cards can communicate with those processors. So they're within the same enclosure, and the virtual interface cards are not independent of these CPUs. They're peripherals that operate under control of the CPU within the blade itself.

Q And what does this -- let's turn to the next slide. What does this show?

A This shows more of the, more details at a block diagram level of the connections in that particular server between the CPUs. You can see two, CPU-0 and CPU-1 at the bottom, and they're communicating with these two slots. You can see one slot, for example, can be a virtual interface card model

1280; in the other, a virtual interface card model 1240. Those communicate over what's known as the PCIE bus, the peripheral computer interface express bus, but it's a way that processors communicate and control the peripheral devices.

So this is over this bus, and this communication link is how the operating system communicates with these cards to gather information on the VNICs and store that information or program that into the CPU via the drivers that are running on the CPUs.

Q Now, just so the jury is clear, you're talking about the VIC and Cisco's attorney was talking about the NIC. Is that the same thing?

A Well, a virtual interface card or a VIC is a type of NIC, so it's fine to refer to both as a VIC or NIC.

Q Now, have you heard any other testimony at this trial that addresses bedrock fact number three?

A Yes, I have. Mr. Jayakrishnan's testimony last week where he was discussing and asked about the PNUOS.

MR. PACKIN: Your Honor, I lodge the same objection.

THE COURT: Sustained.

Q So Dr. Jones, does that take us through this limitation?

A Yes, it does.

Q Can we turn to PDX-1032.

What's the next element we're going to discuss?
A These are elements 3i and 7h, and this is describing how the claim system will respond to the third software command, and will respond by defining a virtual storage space of the virtual processing area network.
Q And turning to the next slide, has the court construed these elements?
A Yes. In addition to the constructions we've seen before, this has been construed as a -- the blue language on the left beginning with "logic to program" and ending with "virtual processing area network has been construed as a means-plus-function term," where the function mirrors that language at the bottom and the structure is identified at the bottom of this slide.
Q Now, Dr. Jones, you submitted a report in this case?
A Yes, I did.
Q And in your report, you addressed these claim elements, is that right?
A That's correct.
Q And did you address in your report whether -- the DME running on the FI program specific sets of Intel processor chips and the internal communication network?
A I did, yes.
Q And it programs them with respect to the specified VNIC related characteristics, was that right?

MR. PACKIN: Your Honor, I object to these leading questions.

THE COURT: Well, he's going to have to if you keep objecting to contents of the report. He's got to work around your objections.

MR. PACKIN: Yes.

A Sorry, can you ask again?

Q And that was -- sorry. And you programmed the specifics out of internal processor chips and the internal communication network with respect to the specified VNIC-related characteristics? Is that your recollection?

A Yes.

Q And you concluded based on that, that these limitations were met, is that right?

A Yes.

Q Taking a look at the portion here of the claim that applies to both 3i and 7h, can we address those first? Let's pull up JTX-416 page 18.

Now, obviously, Dr. Jones, you explained this Figure to us before. What are we looking at here with respect to this claim element?

A Well, this, in this claim limitation, it also consists of setting up virtual host bus adapters, setting up the virtual storage area network. It's basically responding to the commands we saw earlier. That's all done under the

control of the DME, which stores the information in the database. It also, within UCS Manager, is also configuring these devices through the agents that we've indicated or that Cisco has indicated in the row at the bottom of the yellow.

Q Can we turn to JTX-406 page 39. Dr. Jones, what are we seeing here with respect to this claim element?

A This is again that management information tree which stores information about everything in the system. It includes information about things like the host bus adapters that we've been discussing, as well as virtual SANs, and this information is configured via various agents that are responsible for setting up VSAN mappings and port mappings on the fabric interconnect, as well as setting up the network interfaces for the HBAs.

MR. SCHENKER: Mr. Fitzgerald, can we bring up pages 56 and 57 of PTX-12 side by side. Can we blow up those network capture results.

Q Dr. Jones, what are we seeing here?

A This is the information that is available on the fabric interconnect, or the FI, showing the configuration of the system. So after executing various commands of the type I showed before, we can see that the, there is a VSAN 1000 at the top. So there is a virtual storage area network that's identified in this case by the number 1000. It's

associated, in the second line below that, we can see it's associated with a particular port on the fabric interconnect, and that if we trace through, we can see that there are additional associations set up, such as a fiber channel over Ethernet, configurations 2100 and 2121 that will each associate with and correlate with a VSAN. We can see there are descriptions further down on that first page, virtual host bus adaptors and their associations, and that goes onto the bottom of the right page; we can see information about the port configurations and association of the VSAN with the port.

Q Can we turn to page 29. And let's blow up that -- thank you.

Dr. Jones, what are we seeing here?

A These are more log files, and this one is showing a correspondence between VSAN 1100 and VLAN 2100, and that's being recorded in the system. The virtual storage space that's defined are the information about the VSAN, and if that's correlated, or rather to find correspondence to a subset of the external storage address space of the external storage network, that VSAN is able to see or operate with a subset of the storage network defined by that VSAN, and this has a correspondence to, internally, that VSAN number when it's being communicated within the network is going to be, internally to UCS, is going to be using fibre channel over

Ethernet where it will be identified by the VLAN ID of, in this case, 2100.

Q All right. Dr. Jones, let's address the Court's structure from the means-plus-function construction. Can we bring up PX-BJN, please. Dr. Jones, what is BJN?

A This is describing some of the database information in the MIT, and this is representation from -- it's a very long file, but there's information here about the VSANs, VSAN 1100 and its identifier. Information elsewhere in this file would be about the VHBA, but this file corresponds to storage data structure 815/915.

Q So Dr. Jones, the first and second structures I think for this limitation were storage configuration logic 605 and management interface 610. Did you see those in the accused UCS system?

A Yes, I did. Those are the components of the UCS Manager, and the DME correspond to these structures. Those are responsible for managing the information in the data structure, 815/915, as well as interfacing to receive the commands. They also are responsible for setting up the system to be according to the definition received in the commands.

Q Now, Dr. Jones, in your report, I understand you addressed Cisco's argument that there's no mapping of addresses for these elements in the accused UCS products?

A Yes, I did. I disagree with that argument. The, in this instance, the VLAN IDs, VSAN IDs, ports all correspond to addresses, and there is a mapping between the addresses, such as the VLAN ID and the VSAN ID. There's mappings between the VSAN and the VSAN ID and VLAN ID, as well as between VSANs and port numbers.

Q Thank you, Dr. Jones. Now, Dr. Jones what's the next limitation we're going to discuss?

A This is elements 3j and 7j.

Q And turning to the next slide, are there any new constructions to discuss here?

A No, there are not.

Q And what do 3j and 7j relate to?

A Well, they relate to storage messages that are coming into the control node from the computer processors and destined for the internal communication network. So the -- sorry, destined for the storage network, the external storage network, and those are going to be processed at the control node to extract an address, identify a corresponding address, and then at a high level, send that message out to the -- out of the control node.

Q Can we turn to PDX-12, pages 65 and 68 side by side.

Dr. Jones, what is this demonstrative showing with respect to this element?

A This is showing the messages on the left coming into the

fabric interconnect from the processors. This again has that VN-Tag and that VLAN tag, that 802.1 queue below. Both of those are going to be removed, and the VLAN ID that you see there, VID 2121 just below 802.1Q, that's one of those VLANs that we said corresponds to a particular VSAN ID, and on the right, we see that the VSAN tag, that virtual fabric tagging header has been inserted in the outgoing message after the other information has been stripped out, and that's going to have a VSAN ID number that's assigned to it that corresponds to the VLAN ID of 2121.

So in this case, it's extracting an address from the received storage message. It's found a corresponding address in the external storage address space, and then that message is being sent out onto the external storage network.

Q Turning back to page 52, PDX-12. Is this the FLOGI conversion you discussed earlier?

A Yes, it is. It's the same message where the FLOGI is converted to F disc. And as we saw earlier in the structure for the FI, in examples up here, it extracts information including header information such as addresses. This is the storage message going out to the storage network. It will identify a corresponding address for which this message should be sent and it's going to be sent out over a particular port, a port associated with that external storage network and will provide messages to that storage

network over that particular external port.
Q Now, Dr. Jones, does the Doctrine of Equivalents also apply to this limitation using your reasoning regarding addresses from limitations 3c, 7i, 3i and 7h?
A Yes. You know, Cisco's's argued some of these entities are not addresses. I disagree with that, as I've explained how they're used, but the difference is insubstantial because they're used to identify entities in the network both on the internal side and the external side. They're used to route messages through the FI. There are no substantial differences with respect to the claims at issue.
Q All right, Dr. Jones. Turning to element -- sorry, the next slide in PDX-10. What's the next element we're going to discuss?
A These are elements 3k and 7k.
Q And are there any new constructions we need to address here?
A No, the same constructions, and these two limitations discuss how the control node operates on messages that are destined to the external storage network. In this case, it's describing how the control node buffers the messages and -- that are received from the processors, and that it provides those buffered messages out to the external storage network.
Q Can we bring up JTX-535 page 25. Dr. Jones, can you

explain what Cisco is showing us here with respect to this element?

A This is that same Figure before and you can see in the middle, it says "buffering" and "queuing." The control, the control node, or the FI, in this particular chip has buffers to buffer the messages as they pass through the FI, and that's the first and the second generation FIs.

Q All right. And can we turn to page 32. What are we seeing here?

A This is the chip in the third generation fabric interconnect. At the bottom, you can see that it indicates that it has a 12.2-megabyte packet buffer, and that packet buffer is also reflected in the Figure above in the middle towards the left as a packet buffer. So all three generations have buffering in the fabric interconnect.

Q Let's turn to PDX-12 page 41. Can we call out that -- thank you. Dr. Jones, what are we seeing here?

A Well, here the claim requires a "write" message, so I'm going to write data to a file that's going to go to an external storage network. I put some recognizable text in there. You can see the middle of that first highlighted line says "small file 48." We're going to see that same data coming into the fabric interconnect and going out of the fabric interconnect in network captures.

Q So Dr. Jones, your testing confirmed that this buffering

happens?
A Yes.
Q Can we turn to page 44. And let's blow up -- thank you.
What are we seeing here, Dr. Jones?
A This is the network capture on the incoming side of the FI, and you can see that language "small file 48" appears as part of the data that's being sent out from the processors that will ultimately get to the external storage network.
Q Could we go to page 47 and blow up that portion as well. What are we seeing here?
A That is network capture going out of the FI, and in this case, you can see that same language. So the message has been buffered in the FI, and it's a write message and it's been sent out to the external storage network.
Q Now, is that the final limitation of the claim?
A Yes, it is.
Q What are your conclusions?
A That Cisco UCS system infringes claims 3 and 7 both literally and under the Doctrine of Equivalents.
Q Now, because it was made such a big deal during the opening statements about bedrock fact number three, if we can just turn back to element 3i discussing the programming the processors for the network topology, again, in your report, did you provide evidence of how the internal Intel processor chips are programmed?

A Yes, I did. I showed how they are, the DME and the rest of UCS Manager, including those agents, sends information or sends, programs the virtual interface cards, which results in the processors being programmed, and I showed evidence of how that processor has been programmed via the software including the device drivers.

Q And is it programmed with specified VNIC-related characteristics?

A Yes, it is. Those VNIC-related characteristics, such as the Mac addresses that I showed in my evidence appear in -- to the operating system in the screenshots that I showed.

Q And does that include the VLAN ID as well?

A The VLAN ID is something that's configured by one of the other agents. It's configured by the host agent.

Q Dr. Jones, in your report, did you provide argument as to why programming the adaptors is equivalent to programming the processors?

A Yes, I did. I explained that, first, I showed that the programming the adaptors results in the processors being programmed, and I showed that with the evidence that I went through, but also, there are no substantial differences between --

MR. PACKIN: Your Honor, I object and move to strike on the same basis.

MR. SCHENKER: Your Honor, paragraph 137 Appendix A

discusses exactly this.

THE COURT: Overruled.

Q You can continue.

A Okay. So there are no substantial differences between programming the processors through the virtual interface cards or programming the virtual interface cards and programming the processors directly. As I explained, the organization of the blade shows that the virtual interface cards operate under the control of the processors. They're not an independent entity. They're -- the processors are connected to them and communicate with them as peripherals.

Q Thank you, Dr. Jones.

Now, Dr. Jones, were you in the court when Mr. Jayakrishnan listed his reasons why Cisco does not infringe?

A Yes, I was.

Q And are you prepared to discuss those?

A Yes.

Q Can we bring up Friday's transcript, pages 69, I think lines 25 to 70, line five. Looking at his first set of reasons that Mr. Jayakrishnan provides here, why do you disagree with Mr. Jayakrishnan?

A Well, what he's pointing to here is whether a processor node has local storage, and that's, first, that's not described in the claims at all. We just went through the

claim language of claims 3 and 7, and there's no limitation of having or not having local storage. It's not even mentioned, so that wouldn't be a reason for noninfringement.

The use of Gigabit NICs, whether or not they're used in Cisco's products are not -- they aren't, but that's not a limitation of the claims either. The claims don't describe any particular or any network interface card, let alone being limited to the Gigabit -- or Giganet NIC. He indicates that everything in UCS is in Ethernet. There are no limitations in claims 3 and 7 that describe or that limit the claim to be in Ethernet or not Ethernet.

Q Can we highlight 70, 6 through 9. Dr. Jones, what about Mr. Jayakrishnan's testimony here?

A He's addressing, he indicates Cisco has control nodes. I think what he's saying here is that Cisco might call things control nodes but that's just a name and that it's a phrase match, but there are a bunch of differences. He didn't identify the differences, but I understand what he's saying. But as we've seen by analysis, I'm not doing this based on matching names of control node. I showed how the FI met all the limitations of the claim.

Q And could we highlight 70, 13-23. What about Mr. Jayakrishnan's testimony here?

A Well, he's pointing to a switch fabric as well as Figures 2 and 3 and indicating that those don't exist in

UCS. The claims don't mention a switch fabric. The claims are not Figures 1, 2 and 3. There are portions of Figure 3 that are identified in one of the structures that are present in Cisco's system, but otherwise, the claims are what we looked at in claims 3 and 7. We don't look to the Figures to the UCS to see if they infringe.

Q Can we highlight lines 24 through 25. What about Mr. Jayakrishnan's testimony here?

A He's indicating here that their management logic, which I take him to mean the UCS manager and the related information on the FI, that it doesn't sit outside of the control node. So I believe he's referring to UCS Manager being in the control node, and, but, however, that's not a limitation of the claim. I addressed that in my analysis of the claim. It doesn't matter whether the management logic is inside or outside. That language also would only apply to claim 3.

Q Can we turn to 71 lines 7-10. What about Mr. Jayakrishnan's testimony here?

A Well, he's describing whether they have a separate control node, and it's indicating they have a switch fabric in the control node, and that it has management IP in it. Basically, I understand this to be an argument that their fabric interconnect has multiple components in the same enclosure, but that's not something that's even addressed in

the claims.
Q And can we pull up page 75 lines 5-9. What about Mr. Jayakrishnan's testimony here?
A Here he's indicating that claim 3 doesn't require a local storage, but he is indicating that it does require programming the CPU for the network topology. That's an argument that I already went through and addressed.
Q Thank you.
Can we turn back to PDX-10 slide 38. Dr. Jones, what's the next section of your report?
A I'm going to address Cisco's infringing actions.
Q Next slide, please. Dr. Jones, what are we seeing here?
A This is part of the law governing the use of patents. It indicates that a patent invention, if one uses a patent invention, makes, uses, offers to sell or sells a patent invention in the United States, they are infringing the patent.
Q Can we go to the next slide. How does Cisco directly infringe these claims?
A Well, it does so by selling and offering for sale its UCS products. It does it by making the UCS products, as well as using the accused UCS products.
Q Did you confirm that Cisco itself actually uses the UCS products in an infringing manner here in the United States?
A Yes, I did. For example, Cisco does so in its data

centers as we heard last week in its testimony.
Q Can we go to the next slide? What is Cisco's engineers telling us here.
A This is Mr. Morgan who we heard the video of last week and he is indicating that Cisco IT, that's basically Cisco's IT department, is using the UCS system to what he calls deliver their business, such as HR and finance. They use it for building their source code and products. They use it for their website, to what they call their commerce engine.
Q So Cisco is using UCS for all of its own internal business functions?
A For at least these business functions, yes.
Q Mr. Fitzgerald, can we pull up JTX-531 page 8, please. Dr. Jones, what is this showing us?
A Well, this is an Exhibit discussed by Mr. Morgan, and he indicated, he confirmed that this number of total number of UCS blades over to the right, 5,488, that there are, there were more than that at the time of his deposition. It also includes servers both in and out of the United States.
Q Turning to PDX-10 slide 42. What else did Mr. Morgan confirm?
A He confirmed that Cisco, in its configurations of UCS, uses storage area networks in its data centers and describes the communication or the entities that they communicate to over those external storage networks such as a Cisco MDS

switch. He talks about communications to local area networks. He also discusses the fact that the b-series blades are the workhorses for Cisco's UCS system in their data centers.

Q Sorry, let me make sure I heard that. Cisco UCS blades are the workhorses in Cisco's data centers, is that what you said?

A That's what Mr. Morgan said, yes.

Q Thank you. Can we turn to slide 42. What else did Mr. Morgan testify to?

A He testified that Cisco uses port trunking on their, he says their northbound fabric interconnect. That's the connection to the external storage network, and this is associated with that translation we talked about earlier from VLAN IDs to VSAN IDs that happens on the fabric interconnect, and he's confirming that this is something that Cisco does.

Q Can we go to the next slide. And Dr. Jones, what are you showing us here?

A This is two parts of the law related to indirect infringement. I'll address both of them. One is active inducement of a patent as well as what's called contributory infringement where Cisco sells the UCS b-series blades with a chassis that, as identified in my analysis, when it sells that component to a customer and that customer sets up UCS

in an infringing way, that's contributing to that infringement.

Q So, if I understand you, does this mean that Cisco can be liable for its customers' direct infringement?

A That's correct.

Q Can we go to the next slide? Can you tell the jury, how is Cisco liable for its customers' infringement?

A Well, there are several aspects to it. One, Cisco has sold the UCS products to its customers and then Cisco's customers infringe claims 3 and 7 of the '430 patent, so the customers, in this indirect infringement, the customers are the direct infringers. Cisco provides the products to them. Cisco also encourages the infringing use of those products. It -- as we've seen multiple presentations of Cisco describing how to use its products, and we've seen just a fraction of those documents. Finally, Cisco has had knowledge of the '430 patent. We've seen that discussed in terms of the testimony of Egenera employees who knew of the '430 patent and came to Cisco or Nuova, as well as I have addressed Cisco's noninfringement arguments, most of which were not based in the -- from Mr. Jayakrishnan were not based in the claim language.

Q Can we pull up Exhibit AYK. Dr. Jones, what is AYK?

A This is a Cisco live presentation providing what they call a "Deep Dive into the UCS System."

Q Thank you.

MR. SCHENKER: And for the record, we've marked this as Exhibit 541.

(Plaintiff's Exhibit No. JTX-541 received in evidence.)

Q Can you turn to page 27 of JTX-541. Dr. Jones, what is Cisco telling its customers here?

A It's describing the concept of its service profiles and how they can, ultimately how they can be used within the system, and as well as the benefits of those profiles providing basically stateless computing and seamless mobility.

MR. SCHENKER: Can we bring up PXA-OR, please. We've marked this as JTX-542.

(Plaintiff's Exhibit No. JTX-542 received in evidence.)

Q Dr. Jones, what is Cisco instructing its customers here?

A This is what's known as a documentation road map, this document that allows customers to see the information or gives them a roadmap to the Cisco documents for how to use their system, and this one includes, what I'm showing here, are hardware installation instructions, and it's showing where to go to look at the various guides for installing or setting up a fabric interconnect or the chassis. It's going through how to set up and install the system.

Q Can we turn to JTX-247 page 60. And Dr. Jones, what is Cisco telling its customers here?
A This is describing another document that describes how to use UCS and how to configure things. This is talking about how to set up fibre channel uplink trunking. This is associated with the VLAN to VSAN ID translation that we discussed earlier.
Q So does Cisco instruct its customers on how to use the UCS products in an infringing manner?
A Yes, it does.
Q Can we turn back to PDX-10, next slide. And Dr. Jones, what is Mr. Morgan explaining to us with respect to the benefits of UCS?
A He's addressing when Cisco switched, or Cisco IT switched from using HP servers to their own UCS systems, and he focused on operational costs here. We see -- we've heard Mr. Morgan's testimony, but he's talking about the operational cost of reducing the cable plants, reducing their cable footprint by 75 percent, driving down their operational costs. He's, basically what he's describing falls within the category of total cost of ownership. It's not the cost of purchasing UCS itself. It's the cost of using and managing and having it within the environment.
Q So you mentioned "using and managing." Based on your investigation, does UCS provide benefits to provisioning,

administration, and systems management?
A Yes. As we saw for UCS Manager, it's how you set up and manage the system and it's -- it, in a similar way of sending commands, are a software-based way of configuring, provisioning, and managing a system?
Q Are those attributable to the invention of the '430 patent?
A Yes, they are.
MR. SCHENKER: Your Honor, may I approach the witness with some binders?
THE COURT: You may.
Q Now, Dr. Jones, I recognize I handed you a whole lot of papers all at once. Can you identify what is in the binders in front of you?
A At least the first binder contains information provided by Cisco's third-party customers.
Q And did you review these documents during your investigation?
A The last one, make sure.
Yes, I reviewed these documents, and these are the documents that were provided by certain of Cisco's customers.
Q And did you prepare a summary of your conclusions from these documents?
A Yes, I did.

Q Can we turn to slide 48 of PDX-10. And Dr. Jones, what are we seeing here on the screen?
A This is that summary with the names of the particular parties redacted, but these all correspond to the third parties in the, in these documents.
Q And did Cisco and its lawyers have access to the unredacted information during this investigation?
A Yes, they did.
THE COURT: Let me explain, jurors, it's not redacted to hide anything from you. This was produced under a protective order. It obviously involves confidential business information. So that is the reason for the redactions, but you shouldn't draw any conclusion from that.
Q Thank you, your Honor.
And Dr. Jones, having reviewed those documents during this investigation, what were your conclusions with respect to Cisco's third-party customers?
A Well, 28 of the 29 customers have UCS set up in an infringing way. That's based on their connections to the external storage networks, to the external communication network, as well as their use of UCS Manager in b-series blades. One of the customers didn't have the accused components of a UCS system so they were not infringing, but they didn't have the, all of the accused components.
Q Now, Dr. Jones, did you offer any opinions as to whether

Cisco has noninfringing alternatives to the accused products as of July 2009?
A Yes, I addressed what Cisco proposed as noninfringing alternatives, but those were either not specified as alternatives or were incomplete alternatives, or alternatives that weren't available or simply wouldn't have been an actual alternative to the benefits of the '430 patent.
Q Thank you. Now, Dr. Jones, with respect to the third-party documents that you reviewed, is Egenera trying to hold Cisco's customers responsible?
A No. They're not holding Cisco's customers or trying to hold Cisco's customers liable for infringement, no.
Q So under the indirect infringement rules that you showed the jury, Cisco would be liable for that, is that right?
A That's correct, not the customers.
Q Now, Dr. Jones, we walked through a considerable amount of evidence, including multiple Exhibits from your report. Can you tell the jury about how many hours you spent operating, analyzing, and using the actual UCS system?
A Well, in terms of all my analysis, it would be hundreds of hours, but I've been doing it for several years now so I don't recall the exact number.
Q And in your report, you included a report in addition to appendices and exhibits setting out the results of your

analysis and your investigation?
A Yes.
Q Thank you. Dr. Jones, will you turn to the jury and give them a summary of your opinions here?
A Yes. It's my opinion, based on my analysis, that Cisco infringes claims 3 and 7 both directly and indirectly.
Q And is that both literally and under the Doctrine of Equivalents?
A Yes.
Q Thank you.
MR. SCHENKER: Your Honor, with respect to the PDX's that were actually discussed during -- the PX numbers from Dr. Jones' report that were discussed during his direct examination, we'd like to make a proffer.
THE COURT: Very well.
MR. SCHENKER: I pass the witness.
THE COURT: All right.
MR. PACKIN: Thank you, your Honor.

CROSS-EXAMINATION

BY MR. PACKIN:
Q Good afternoon, Dr. Jones.
A Afternoon, sir.
Q How you doing?
A Doing fine, thank you.
Q Great. As Egenera's outside consultant in this case,

you get access to all the relevant information, right?
A Everything that's been produced, yes.
Q You gave us, like, a long list of examples of that kind of information that you saw, right?
A Yes.
Q And so, for example, you had access to Cisco's internal emails, right?
A Internal emails that were produced. Not all of Cisco's internal emails.
Q Right, but the discovery has been going on in this case for years and Egenera asked Cisco for information, and the rules require that Cisco turn over that information, right?
A That's correct.
Q And so you had access to emails, you had access to people's personal computer files, right?
A I don't recall whether they were personal computer files.
Q I'm sorry, let me rephrase. Their work computers that documents were collected off of, electronic files?
A Yes, that's correct.
Q And you had access to their physical files; some files were collected from filing cabinets as well, is that right?
A I got everything in electronic form so I couldn't tell you.
Q And we even saw some jabber messages with

Mr. Jayakrishnan, so you had those instant messages even as well?
A Yes. They were available.
Q You had all that, all that type of information, right?
A Yes.
Q Including Cisco's confidential technical documents, the source code that you talked about, right?
A Yes. Whatever was produced, I had access to.
Q And the way litigation works is that once you have all that information, you study it, and then you prepare detailed reports compiling your findings, right?
A That's correct.
Q And it's important for you to put all your findings in your reports, right?
A Yes.
Q And it's important that they're thorough and accurate, right?
A Yes.
Q And the rules actually require you to put your opinions in the report; otherwise, you can't testify about them, right?
A That's my understanding, yes.
Q And you did that in this case, you prepared the reports, right?
A Yes.

Q And you didn't find any mistakes in your reports when you reviewed them, substantive mistakes?
A Not that I recall, no.
Q Okay. Let's talk about -- we're going to get to the reports, but just so everyone knows what we're talking about, let me switch gears for a second. You talked about the term "control node," right?
A Yes.
Q And I think Egenera's counsel during opening made a big deal that Cisco's documents used the word "control node." Were you here for that?
A I was here for the opening, yes.
Q You are aware that Egenera was not the first company to use the term "control node," right?
A I would expect that someone else has used that term. Not in this exact same context.
Q We've also heard about "processing node," that word, right?
A Yes.
Q And you don't assert that Egenera was the first company who used the term "processing node," right?
A That's right.
Q We also heard about "logical servers." I think you talked about that, right?
A Yes.

Q And Egenera wasn't the first company to use the words "logical servers," right?
A That may be true.
I can't recall at this point.
Q You're not making that assertion, right?
A That's correct.
Q And you don't believe that Egenera was the first company to use the term "virtual NIC" either, right?
A Again, I can't recall, but that's not a claim I'm making.
Q Okay.
MR. PACKIN: Your Honor, can I approach over there to ask the witness about his board? Is that okay?
THE COURT: Of course.
Q So, you drew this board for the jury, right, during your opening?
A That's right.
Q And you mentioned something called FLOGI and FDISC, right?
A That's correct.
Q Now, is FLOGI an address?
A That is not an address.
Q And FDISC is not an address either, right?
A That's right.
Q And you mentioned something called ZRC, right?

A That's correct.
Q That's not an address either, right?
A That's correct.
Q And there are different start-of-claim fields, end-of-claim fields, those aren't addresses either, right?
A That's correct.
Q Now, you know that Cisco disputes whether this VLAN and VSAN ID, whether those are addresses, right?
A That's correct.
Q And I actually asked Mr. Brownell, one of -- the lead inventor on the patent, I asked him about VLAN IDs. You were here for that, right?
A Yes.
Q And I asked him, is the VLAN ID an address, and he said it's a tag. He wasn't sure if it's an address. You were here for that, right?
A Yes.
Q And I asked him about VSAN IDs also, right?
A I recall that, yes.
Q He didn't even know what a VSAN ID was, right?
A I can't recall his answer on that one.
Q Okay. Well, you looked at a lot of Egenera documents, right?
A Yes.
Q And Egenera documents, certainly none of them said that

a VSAN ID is an address, right?
A I don't recall one of them saying that, that's correct.
Q You're also not aware of anywhere in the '430 patent, the patent at issue in this case, calling the VSAN ID an address, right?
A That's correct.
Q And as far as a VLAN ID, as of the time of your deposition, you didn't even look at the '430 patent to see whether the '430 patent called the VLAN ID an address, right?
A I can't recall one way or the other, but I, I don't recall doing so, no.
Q And you would agree that a VSAN ID is just a network ID, right?
A Yes.
Q And VLAN ID, similarly is just a network ID, right?
A Yes.
MR. PACKIN: Now, if I could have Mr. Chen's testimony because I think he talked about how the VLAN and VSAN ID's were used.
Mr. Herzka, I think I have that on slide 18.
Q Now, you were here for Mr. Chen's testimony. We all saw that last Friday, right?
A I did, yes.
Q And you were here when Mr. Chen said, "The VLAN ID is

not used in making a forwarding decision." Right? You saw that?

A I did.

Q We can take that one down. And now, the VLAN ID to VSAN ID translation that you are accusing of infringement, that's in something you called trunking mode, is that right?

A That occurs in, when they, when the fabric interconnect is configured in trunking mode, yes.

Q And I think you told us that Cisco uses trunking mode? I think you said that in your direct, right?

A Yes.

Q But you didn't analyze whether any -- and you showed us all those customer data, right?

A Yes.

Q But I didn't see trunking mode on that list of the customers. It wasn't on there, right, in your Exhibit?

A That's correct. It was not one of the questions that was asked of them.

Q Right. So you didn't analyze whether any Cisco customers of UCS actually used trunking mode, right?

A That's correct.

Q Now, let's talk about the VN-Tag.

MR. PACKIN: Your Honor, if I may approach again?

THE COURT: You may.

Q So I think you were telling the jury, you have a

message. It starts here. This is the CPU, right?
A Yes.
Q And then it goes up, it goes up to the, eventually to the fabric interconnect, the switch, right?
A That's correct.
Q And one of the things you talked about in the modification is this VN-Tag, right?
A Yes.
Q And you said the VN-Tag is removed up here at the fabric interconnect, right?
A Yes.
Q Now the VN-Tag is added to the, to the packet at the virtual network interface card, right?
A That's correct.
Q And that's in an adaptor, right?
A Yes.
Q And one other question. We talked about these different modifications. You don't have any opinion that the Mac addresses from the messages going from the CPUs out to the network, you don't have anything that those are modified by the fabric interconnect, right?
A That's correct.
Q Now, let me just step back for a minute because we've been talking a lot about patents and understanding patent, and I want to make sure that we're all on the same page here

in terms of how to understand patents and who can understand patents. Okay?
A Okay.
Q Now, you showed the jury -- if I can have the ELMO, please.
You showed the jury this slide saying, talking about the person of ordinary skill in the art, right?
A Yes.
Q Effectively, that's a computer engineer, right, computer scientist with experience?
A With this experience, yes.
Q And we heard last week during the patent video, in the description, that -- I'm sorry, that a patent description must be clear enough to enable someone of ordinary skill in the field to use the patent. Right?
A Yes. That's correct. With -- without undue experimentation or something along those lines.
Q And you agree that that requirement is met by the '430 patent in this case, right?
A Yes.
Q Now, the reason that you told the jury about the person of ordinary skill in the art is because you need to read the patent from the perspective of a person of ordinary skill in the art, right?
A That's correct.

Q And in fact, throughout your reports, you considered the '430 patent through the eyes of a person having ordinary skill in the art, right?
A Yes.
Q Now, we heard from Mr. Brownell earlier during this trial. You were here for that, right?
A Yes.
Q And you agree that Mr. Brownell is a person of ordinary skill in the art at the relevant time, right?
A That's my recollection, yes.
Q And same for Mr. Manca, he was a person of ordinary skill in the art at the relevant time, right?
A Yes.
Q We also heard from Mr. Jayakrishnan and we're going to hear from him again. You don't dispute that he is a person of ordinary skill in the art, right?
A I don't.
Q Now, you're not a lawyer, right?
A That's correct.
Q You're a retired computer science professor, right?
A Yes.
Q And, but you can still understand patents because patents are not really written for lawyers. They are written for people of ordinary skill in the art, right?
A That's correct.

Q Okay. Let's -- we can take this one down.

Let's talk about what others in the servers industry were doing other than Cisco. Right? You agree that there are other computer companies that sell servers, like HP, right?

A Yes.

Q And they've been doing that for years and years, right?

A Yes.

Q And I think one of the things that you said was a benefit to Egenera's approach was the ability to rapidly deploy servers; did I get that right?

A That's correct.

Q And the patent itself talks about rapidly deploying servers, right, it's one of the issues?

A Yes.

Q Now, you're not saying that all competitors to UCS in the industry achieve rapid deployment, who achieve rapid deployment of servers necessarily infringe the '430 patent, right?

A That's correct.

Q You agree that it's possible to improve rapid deployment of servers without infringing the '430 patent claims, right?

A Yes.

Q In other words, folks can achieve rapid deployment of servers in different ways, right?

A It's possible, yes.
Q Similarly, we talked about "cabling." I think we've heard about that in this trial, right?
A Yes.
Q You agree there are different ways to reduce cabling in a data center, right?
A Yes.
Q And you agree it's possible to reduce cabling without infringing the '430 patent, right?
A It's possible, yes.
Q And one of the ways to reduce cabling is using something called fibre channel over Ethernet. I think you mentioned that Cisco was using that, right?
A That can be used to reduce cabling or to make the infrastructure more, I guess, conducive to management and more consistent with other parts of the infrastructure.
Q So fibre channel over Ethernet helps reduce cabling and make management of the data center easier, right?
A It can simplify it, yes.
Q And you agree that Egenera did not invent fibre channel over Ethernet, right?
A That's correct.
Q Now, with respect to HP, you don't know, for example, how they simplified their data center and reduced their cabling. You haven't looked into that, right? I'm sorry,

let me state it again. You don't know how HP's competitive products to UCS simplified a data center and reduced cabling; you haven't looked into that, correct?
A That's right.
Q And you're not saying that HP's competitive products to UCS, you're not saying that those infringe the '430 patent, right?
A That's correct.
Q Similarly, you're not saying that IBM's competitive products to UCS infringe the '430 patent, correct?
A That's correct.
Q Now, we heard a lot about virtualization, and it's still a hard word for me to understand, but you agree that the '430 patent doesn't cover every way of doing server virtualization, right?
A That's correct. For example, it doesn't cover what VMWare was doing with virtual machines, which were virtual processors on top of physical processors.
Q Right. So you agree it's possible to do virtualization, server virtualization without infringing the '430 patent, right?
A That's correct.
Q And the '430 patent certainly doesn't claim all forms of virtual machines, right?
A That's correct.

Q And similarly, Egenera didn't invent the concept of virtual storage, right?
A That's true.
Q And the '430 patent doesn't claim all forms of virtual storage, right?
A That's true.
Q And Egenera also didn't invent the concept of virtual networks, right?
A That's correct.
Q And the '430 patent does not claim all forms of virtual networks, right?
A That's correct.
Q Now, because there are other companies doing other types of server virtualization in the data center, Egenera's claims had to be very specific in order for Egenera to get its patents, right?
A I don't think that was the -- based on the file history, I don't think I would agree with that.
Q Let me try it again. You agree that the '430 patent through its claims is directed to a specific computing platform for deploying processor area networks, right?
A Yes.
Q And you walked through the claim. We can all agree they're pretty long, right?
A Yes.

Q All right. So let me pull up the claim and we're going to go much quicker than you did, I promise. Can we pull up slide 2, Mr. Herzka.

Now, you know that Cisco disagrees with Egenera on multiple elements of this claim, right?

A That's correct.

Q And you know that Cisco has a computer science professor who is going to testify as its expert from the University of North Carolina; he'll be here later this week, right?

A Yes.

Q And he disagrees with you on multiple things on this claim, right?

A Yes.

Q And the jury will hear from Cisco's other witnesses including Mr. Jayakrishnan later this week regarding other differences from the claim, right?

A Yes.

Q Now, you didn't show the jury the actual physical server, but I think it's useful for everyone to see.

MR. PACKIN: Your Honor, can Dr. Jones just come down and take a look and then go back to the stand and answer questions?

THE COURT: I'm sure he can. I suspect this is a familiar sight to him.

Q I just want to make sure. So let me open it up. This

is the one you looked at right before the trial started, so just make sure.

A I've seen it before.

Q Okay. Go ahead to your seat. I'll ask you some questions.

Now, this server, this is only part of the infringing system, according to you, right?

A That's correct.

Q In order to have infringement, you need to connect the server up to other components, right?

A Yes.

Q So for example, to infringe the claims, you need to connect this server up to, I think you called it a FEX or an IOM, right?

A Yes.

Q Because the FEX or the IOM, that's what you're pointing at as the internal communications network that's required for the claim for infringement, right?

A That's part of it, yes.

Q So why don't we just pull up the next slide here so we can see where we are in the claim. And it's right there in the claim, "internal communications network," right?

A Yes.

Q So you don't have an opinion that customers that use UCS without connecting it to a FEX or IOM infringe any claim of

the '430 patent, right?
A That's correct. If there is no FEX or IOM in their system, then I don't have an opinion that it infringes.
Q Okay. If we go down to the next element, there is a control node, right?
A Yes.
Q And that's what you're saying is the fabric interconnect, right?
A That's correct.
Q And the fabric interconnect, that's yet another box outside this server box, right?
A Yes.
Q And more specifically, we're pointing at the fabric interconnect with something called UCS Manager software on it, right?
A Yes.
Q And you agree that someone could run this UCS series, UCS c-series server without using UCS Manager, right?
A The c-series, yes.
Q And the claim, if we go to the next element, it also says that the -- that it needs to be connected to an external storage network, right?
A It says it's configured in a way that it's in communication with an external communication network, an external storage network, yes.

Q So this needs to be configured in a way that it's in communication with an external storage network, right?
A Yes.
Q And you agree that UCS can be deployed without connecting it to an external storage network, right?
A It's possible, yes.
Q Let me see here if we can -- so for example, this is a hard drive that's inside the server, right?
A Yes.
Q As an example?
A Yeah.
Q It's an SSD -- sorry.
A Yes, it is.
Q And this is an example of local storage that could be inside the server, right?
A That's correct.
Q And you certainly agree that customers of UCS can use local storage in the server instead of network storage, right?
A It's possible they can configure it that way.
Q So if the fabric interconnect, which is the other box that this is connected to, is not in communication with an external storage network, there would be no infringement, right?
A I don't agree. It's, the control node is configured to

be in communication with both of those entities. So for claim 3, I --

Q Sorry, let's see if we can look at the claim. At least one control node in communication with an external communication network and an external storage network. So if the control node is not in communication with an external storage network, there is no infringement, right?

A I don't agree. I think to me, this is describing a capability that the control node is in communication with both of those networks.

Q Okay. So even if the control node is not in communication with an external storage network, you still think there is infringement?

A Of claim 3, yes.

Q And claim 7 is a method claim so there definitely needs to be communication there to infringe, right?

A There definitely needs to be a -- that limitation will require setting up or connecting to the external storage network, yes.

Q Now, you showed us a slide with some customers, right?

A Yes.

Q Now, you didn't pick the customers who were subpoenaed or put on that list, right? That was the lawyers who did that?

A Yes.

Q Now, you didn't do an analysis of all UCS customers to figure out which of them used local storage and which of them used external storage, right?
A That's correct, but based on the design of UCS, I wouldn't see a need to do that.
Q Sir, you have not done an analysis of what percentage of all UCS customers use external storage as opposed to local storage, right?
A That's correct.
Q Now, this server, this is one of the ones you accused of infringement, right?
A Yes.
Q And it's got a board, right?
A Yes.
Q And the board has sockets for processors, right?
A Yes.
Q And it's got slots for network interface cards, right?
A Yes.
Q And it also has slots for memory, right?
A Yes.
Q And now, so the server, just to be clear, it's got processors, right, in it, this one? And this one has network interface cards in it, right?
A Has slots for them.
Q I'll pull them out. We'll get there. And it also has

memory. I'll pull that out to show you too.
A Yes.
Q Now, the UCS server also has other components too, right?
A Yes.
Q It's got, for example, these fans, right?
A Yes.
Q That's in the server. Egenera did not invent putting fans in the server, right?
A That's correct.
Q And the server also has, let's see, it's got these power supplies, and for the record, I pulled out the power supply?
A Yes.
Q And Egenera did not invent putting power supplies in servers, right?
A That's correct.
Q And there is also -- let's look at the local memory. So I have to take this off for a second here. Here we go. This is an example of RAM that I am holding in my hand, right?
A Yes.
Q And that's memory in a DIM slot, I think that's what we talked about, we heard about that?
A Yes.
Q And Egenera did not invent a server having DIM slots or

RAM, right?
A That's correct.
Q That was done for years and years before Egenera?
A The DIM slot at least for several years, yeah.
Q And so we had, before Egenera, we had servers with DIM slots, power supplies, NICs, CPUs, fans, storage; all that existed before Egenera, right?
A Yes.
Q Now, you didn't analyze whether the ability to increase the number of memory sticks or DIM slots in a server is attributable to the '430 patent, right?
A That wasn't something I addressed in my analysis, that's correct.
Q Right. So you're not saying that putting more memory in the server is in any way attributable to the '430 patent, right?
A That's correct.
Q I'm going to put this one down because it's not as easy to get back in.

Now, let's talk about another part of the claim, computer processors, if I go to the next slide.

Now, computer processors, I highlighted a few examples, but that's all over the claims, right?
A Yes.
Q And you need to have -- for example, if we go to the

next slide, the computer processors need to be connected to an internal communications network, right?
A That's correct.
Q And if we go to the next one, you need to specify a number of computer processors for virtual processing area network, right?
A Yes.
Q Then you need to, on the next one, you need to select, under "programmatic control," a corresponding set of computer processors, right?
A Yes.
Q And then finally, if we go to the next one, you need to program corresponding set of computer processors to establish specified virtual local area network topology, right?
A Yes.
Q Now, we know from the court, if you go to the next slide, that computer processor in this patent, that means CPU, right?
A That's correct.
Q And the patent, it talks about how the processors execute specific applications. I think I actually may have a slide on this. Go the next slide, please. How the PAN may be used to execute specific customer applications like web-based server applications, right?

A Yes.
Q And the processors that you're pointing to for infringement, they're Intel CPUs in the server, right?
A Yes.
Q And actually, I took this off before, maybe I'll show it on the ELMO because it's a little hard to see, this is the plastic baffle that goes over them, right?
A Yes.
Q Can I have the ELMO for a minute. It actually has labels on it; CPU 1 and CPU 2, right?
A That's correct.
Q And those are the CPUs, computer processors that you're pointing to for infringement, right?
A Yes.
Q And now, you have here, underneath that plastic, you have these two big metal heat sinks, right?
A That's correct.
Q And those go on top of the processors, right?
A Yes.
Q And the reason you have the heat sinks is because the processors can get very hot, right?
A Yes.
Q And so these metal boxes, those help to cool them down, right?
A Yes.

Q And the processors are basically the brains, the Intel CPUs that we're talking about are the brains of the server, right?
A That's fair.
Q Now, I actually asked Mr. Jayakrishnan to help me take one out because that's beyond my capability. I've got one here so I can show everyone. So underneath the heat sinks, we have these Intel CPUs, right?
A Yes.
Q So these are the CPUs that are the computer processors in the claims, right?
A Yes.
Q And you would agree with me that in UCS, there is no way to identify that you would like only one of the CPUs as opposed to the other CPU in your network, right?
A That's correct.
Q And so, the way that UCS works is it includes -- I'm sorry, let me say that again. The way that you say CPUs are selected for inclusion into a network by UCS is by virtually selecting the entire server, right?
A Yes.
Q Now, if you're running one of these servers, you could have a situation where one of these CPUs fails, right? That could happen?
A It's possible.

Q And in UCS, if one of the CPUs fails, there's no way to replace just that CPU without replacing the entire server, right?
A When you say "replace," do you mean physically replace a CPU with one of the socket?
Q I'm sorry, obviously we can unscrew it, right?
A Yeah.
Q That's what I'll give Mr. Jayakrishnan the credit. That's what he's done, right?
A Yes.
Q So in UCS, if one of the processors fails, there is no way, using software commands, to replace that CPU without also replacing the entire server, right?
A You can't replace the CPU with software commands. I mean -- maybe I'm not understanding your question.
Q Let me try to ask it very specifically here. You don't know of a way in UCS, through software commands, to swap a new CPU into the network in place of a failed CPU without also swapping the entire server containing the failed CPU for a replacement server, right?
A If we're talking about, like, associating the server and replacing that association, I would agree with that. If it's talking about physically replacing, that -- yeah.
Q Okay, why don't we show you your deposition. Let me give you a copy of -- I have a binder. I wasn't going to

use it, but I'll give it to you.

I'd like you to turn to page 144 of your deposition transcript, line 20, and it's J-105.

MR. PACKIN: Oh, I need Mr. Herzka, please.

"QUESTION: In UCS, is it correct that there's no way through software commands to swap a new CPU into the network in place of a failed CPU without also swapping out an entire server containing the failed CPU for some other replacement server?

"ANSWER: "I don't know -- I don't know of one."

Q So in other words, if you want to take a failed CPU out of the network in UCS using software commands, you have to take out the entire server that contains that CPU from the network, right?

A Yes. As long as we're talking about logically and not physically.

Q Right. Using software commands.

A Yes.

Q Now, let's talk about another component that we've all heard a lot about. This one is a little bit trickier, so let me -- this is a riser that I just pulled out of the server, right?

A Yes.

Q Now, let's see.

Now, what I've pulled out of that riser, this is a

network interface card that we've all heard about. Right?
A Yes, I believe so.
Q And it's, sometimes it's called a VIC, or there are other names of it, but at the end of the day, for our purposes, we can call it a network interface card, right?
A That's fine.
Q And you're familiar with network interface cards, right?
A Yes.
Q And I think you just said the network interface cards, the NICs, those aren't in the claims, right?
A That's correct.
Q Now, let's focus on one of the key parts of the claims that we've been talking about here. If we can pull up the slide, I think it's 13, Mr. Herzka.

So this is in underlines, "the program set a corresponding set of computer processors to establish the specified local virtual area network topology," right?
A Essentially, yes.
Q Now let's look at what you say for that. I'm sorry, if I could have the ELMO back, please.

Now, if I underline this portion, because there is a lot of dense text here, but you say, I think you said just before but I just want to make sure "Specify the VNIC related characteristics including VLAN ID and Mac address attributes," and then you have in parenthesis "(the

specified virtual local area network topology)," right?
A Yes.
Q So the VNIC-related characteristics including VLAN ID and Mac address, those are what you're saying are the specified virtual local area network topology for the claims, right? That's what you're showing in your report, right?
A And the VNIC-related characteristics, yes.
Q Okay. Right. Yes. So let's get to the VNIC. Now I want to talk about the establishing part because we've been talking about programming that establishes this virtual local area network topology. Let's figure out what you're pointing out there because I was trying to follow closely, but I just want to make sure we're on the right page here.
Starting with the second sentence, this is page 1 -- paragraph 193 on page 238 of your report. This says, "This programming establishes the virtual local area topology specified" in the claim that we're talking about here, right?
A Yes.
Q And the programming that you're talking about is "the programming of the VNIC," right?
A At that place, yes.
Q And I think you put this up. I have my own slide, but let me see if I can put up your slide. It think it's

JTX-182 at page 84, and I think I need Mr. Herzka's help for this one.

Let's see if I got it right. Yes, I did. Okay. So you showed this diagram about creating a VNIC. You showed that to the jury just before, right?

A Yes.

Q And you have there the Mac address assignments in the top right corner, right?

A Yes.

Q And so you have the Mac address assignments happen to the VNIC, right?

A Sorry, I missed a part of that question.

Q You have the Mac address assignments that you do when you're creating the VNIC, right?

A Yes.

Q Now, let's talk about where these VNICs are located, and I'm trying to follow the Exhibit numbers. They keep changing on me but let's make sure. I think this is VJC, which was Exhibit 13 to your report. If I can have the ELMO back. I have this printout, so it's not the best but hopefully you can read it.

Now, this is a screen that you didn't, you didn't show the jury this particular screenshot, right?

A I don't think so, no.

Q Now, this talks about specifying how the VNICs and VHBAs

are placed on the physical network adaptor, right?
A That's correct.
Q And you would agree with me that the VNIC is on the physical network adaptor, which we're also calling network interface card, right?
A Yes.
Q Let's just make sure we're all a hundred percent on the same page now; have your source code Exhibit 23, which was PXB-JM and also PDX-12, but the page numbers kept changing on me, so it's paragraph 83 and I don't think the paragraph numbers changed so the record will be clear on that.

Now, "The actual VNIC creation happens on a Palo, Menlo or Cruz, or equivalent VIC of a processor blade," right?
A That's correct.
Q So the actual VNIC creation happened on -- those are other words, code names for this network interface card, right?
A Yes.
Q Now, we've been a little bit down in the weeds with this source code and other stuff, but you would agree with me, Dr. Jones, that at a high level, the network cards in UCS are programmed with the network identity in order to establish the network topology, right?
A Yes. That's part of the process.

Q So let's just make sure that we're all on the same page here. So I'm holding the network interface card in my right hand, right?
A Yes.
Q I'm holding the CPU in my left hand, right?
A Yes.
Q And you agree, Dr. Jones, that those are not the same thing, right?
A That's correct.
MR. PACKIN: No further questions.
THE COURT: Redirect?
MR. PACKIN: I will clean this up at 1:00, your Honor.
THE COURT: That's fine.

REDIRECT EXAMINATION

BY MR. SCHENKER:
Q Dr. Jones, during his cross-examination, Cisco's attorney showed you portions of your report, is that right?
A Yes.
Q And this was with respect to programming of the VNICs?
A Yes.
Q Can we get the ELMO? And this was I believe -- I was trying to follow along. He showed you portions of paragraph 193 saying that the NICs are programmed, was that right? The programming of the VNIC creates a virtual relationship?

A Yes.
Q Now, did Cisco's attorney show you that this programming provides communication among the Intel processor chips?
A I don't recall which portion of a page he showed, but I recall that portion in my report.
Q And in paragraph 192, you also explain how the Intel processor chips are programmed, is that right?
A Yes.
Q The DME will initiate programming of the Intel processing chips of the UCS servers? That's what you testified to?
A Yes.
Q And that's consistent with your testimony that you offered today?
A Yes.
Q Now, Cisco's attorney, you know, asked questions about whether VLAN IDs or VSAN IDs were addresses. Do you recall that?
A I do.
Q Now, first of all, do the claims require addresses in particular?
A Certain limitations do; certain don't.
Q And you offered testimony today as to whether those limitations were met literally and -- or substantially similar, so Doctrine of Equivalents, for example?

A Yes. I explained how those meet the limitations, how the -- in my analysis, I included the VLAN ID, the VSAN ID and VN-Tag as examples of addresses that meet the limitations. In some cases, the limitations require addresses and I show that they're also equivalent to those.

Q Cisco's counsel asked you about trunking mode, is that right?

A That's correct.

Q For claim 3, if the system is configured capable of trunking mode, is that sufficient?

A Yes.

Q And Cisco's's counsel didn't dispute the fact that Cisco itself is using this infringing trunking mode?

A That's correct.

Q Now, Cisco's counsel also asked you about Mac addresses and whether there was any Mac addresses in the claim -- in UCS? Does the claim require Mac addresses?

A No, it does not.

Q Cisco's counsel also asked you about different ways to achieve the benefits of the system. They pointed to fibre channel over Ethernet, and HP, and IBM, and their systems in particular?

A Yes.

Q Were you asked to analyze HP?

A No.

Q Were you asked to analyze IBM?
A No.
Q So there's just no -- you haven't determined that HP and IBM don't infringe. You just have never done that sort of analysis. That hasn't been the case here.
A No, that hasn't been an issue, so I haven't done that analysis.
Q Okay. Now, Cisco's counsel also talked about the different ways to obtain the benefits of the '430 patent. You studied the UCS and you determined the benefits here?
A Yes.
Q And the benefits of UCS were those attributable to the invention of the '430 patent?
A Yes, they were, and I presented evidence of that.
Q Thank you. And the fact that UCS has all these additional components in the server that aren't -- are those components recited in the claim?
A No. The claim doesn't require -- it doesn't recite things like power supplies and fans.
Q Okay. So this is my first time looking at this server, but you've actually looked at this, and so the fans in the server and the heat sinks, those are not part of the claims, are they?
A That's correct.
Q And you talked earlier about the ability to -- just

because there is something extra in the claims, so just because you program the NIC, that doesn't mean that you don't infringe the claim, is that right?

A That's correct. The "comprising" word means that I'm not limited to only what's in the claim. I have to do everything in the claim, but extra things don't lead to noninfringement.

Q Okay. So looking back at your testimony again from paragraphs 192 and 193 of the report that Cisco's counsel put in front of you, can you provide more detail on how the CPUs are programmed?

A Yes, I can. The CPUs are programmed in, one of the ways they're programmed is by the software on the CPU, the operating system, communicating with the virtual network interface via drivers, which are also software, and is --

MR. PACKIN: Your Honor, I object and move to strike. This isn't what he is showing him in the report.

MR. SCHENKER: Your Honor, he's responding to the arguments and questions on cross-examination.

THE COURT: Overruled.

A So it receives, the processor receives the information from the virtual interface card via that software, and it's programmed with that information. We saw evidence of that. I showed what was in that operating system during my testimony.

Q Thank you. Now, this was a c-series server that you showed here. Do I understand that these can be operated in what's called -- sorry, that Cisco showed here, that this can be operated in what they call "standalone mode"?
A Yes, not all c-series servers are managed by UCS Manager and are accused. Only those used within an infringing configuration. The same isn't true of b-series. B-series servers are designed to be used with UCS Manager and a fabricator connect and FEX and IOM.
Q Can you give us a little more detail on the lack of, Cisco's lack of noninfringing alternatives as of 2009?
MR. PACKIN: Objection, your Honor. This is outside the scope of the cross-examination.
THE COURT: I agree with that, yes.
Q Cisco's counsel asked you about server virtualization and suggested that lots of companies were doing it. Now, if lots of companies are practicing the patent of the '430, sorry, the invention the '430, does that excuse Cisco?
A No, it wouldn't. Just because, if other companies were practicing, which is something I haven't analyzed, then that wouldn't change whether or not Cisco infringes.
Q And in fact, Cisco's attorney pointed out that the claims here are directed to a specific computing platform, is that right?
A Yes. The platform of the claims.

Q And that was because these were long claims that had a lot of requirements, according to Cisco?
A I heard that, but the claims are the claims and the claims laid out the platform.
Q Now, again, pointing back to the NICs and the memory boards and the processors, and pointing out that Egenera did not invent those, is that relevant to the claims?
A No, that doesn't affect the analysis of infringement at all.
Q And Cisco's lawyer pointed to testimony about Mr. Brownell, about whether VSAN IDs were addresses. Is it your recollection that Mr. Brownell said he couldn't recall much about the VSAN IDs?
A I don't recall the specifics of his testimony either.
Q Cisco's attorney also asked questions about whether you could swap out one CPU for another CPU using software commands, do you recall that?
A I do.
Q Is that relevant to the claims?
A Well, being able to swap things out, servers out or processors out at a high level is relevant because that's an advantage in the claims, but whether or not you can specify one CPU to swap out is not relevant to the claims.
Q So the claims don't require you to be able to specify one particular CPU over a different particular CPU, is that

right?
A That's correct.
MR. SCHENKER: No further questions, your Honor.
MR. PACKIN: Very briefly. Finish by one, your Honor.
THE COURT: Perfect.
RECROSS EXAMINATION
BY MR. PACKIN:
Q Let me just put up that part of the report that we're talking about so that we're all on the same page, no one is playing fast and loose here.
So your counsel showed you this. "DME will initiate the programming of Intel processor chips of the UCS," and then it goes on and says "See Exhibit 23," right?
A Yes.
Q Let's look at what you said in Exhibit 23 because I think this is important, just so that we know exactly what we're talking about here. Exhibit 23, this is the section where you talk about the programming that we're talking about here to establish a network topology, right?
A Yes.
Q And then you have a section that talks about programming the internal communications network; that's part of the claim, right?

A I addressed that, yes.
Q And then you have one, two, three, four, five things, right?
A Yes.
Q As examples. And then for programming the processors, you have this one example, and this is in paragraph 43, To program the processors to establish a network topology. So that's in paragraph 43 to Exhibit 23, which is BJM, PX-BJM, right? That's what you were pointing at, right?
A That's one of them, yes.
Q That's the only one that you have in here. You have five examples for the communications network, and then you list out, and this is the example for the programming of the computer processors, right?
A I don't agree. My recollection is there are quite a few bit more analysis of that limitation in that portion of the report.
Q Okay. Now, you agree though that we need to focus on the claims in this case, right?
A Yes.
Q And you know that Professor Jeffay, he's going to come back and he's going to talk about the claims, and he disagrees with your analysis, right?
A Yes.
Q And Mr. Jayakrishnan, he's been working on UCS for over

a decade, right?
A Yes.
Q And he spent thousands of hours with the code, right?
A I would assume so, yes.
Q And he disagrees with your analysis too, right? You know that too, right?
A Yes, I do know that at a high level, yes.
Q And Mr. Dvorkin, we haven't heard about him yet, but he's the architect who came up with UCS Manager in Nuova, right?
A Yes.
Q He came up with it, right? He's the -- or let me step back. You know that he disagrees with what you have to say too, right?
A That's correct.
Q And we're going to be hearing from him, I think tomorrow or the next day, right?
A That's my understanding.
Q And so at the end of the day, we've heard a lot about copying, we've heard a lot about employees, we've heard a lot about other things, but this is a patent case, and at the end of the day, if the jury agrees that the CPUs are not programmed to establish a network topology, there's no infringement, right?
A If they believe that that limitation isn't met, or

literally on the Doctrine of Equivalents, then there's no infringement, that's correct.

MR. PACKIN: Thank you. No further questions.

THE COURT: Thank you very much, Dr. Jones. That concludes your testimony. All right, jurors, it's 1:00. Egenera has one more witness tomorrow, I believe. Am I right?

MR. BATCHELDER: Two, your Honor.

THE COURT: Two. Okay.

Jurors, we are solidly past the halfway mark on the clock. We're confident we're moving as planned, and I look forward to seeing you at 9:00 tomorrow morning.

THE CLERK: All rise.

(Jury and court depart at 1:00 p.m.)

**I N D E X**



E X H I B I T S



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C E R T I F I C A T E

We, James P. Gibbons, Official Court Reporter for the United States District Court for the District of Massachusetts, and Lisa McDonald, RPR, RMR, CRR, do hereby certify that the foregoing pages are a true and accurate transcription of our shorthand notes taken in the aforementioned matter to the best of our skill and ability.

/s/James P. Gibbons August 8, 2022
James P. Gibbons

/s/Lisa McDonald
Lisa McDonald

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